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MARCH - APRIL, 1960 VOL. 14 NO. 2

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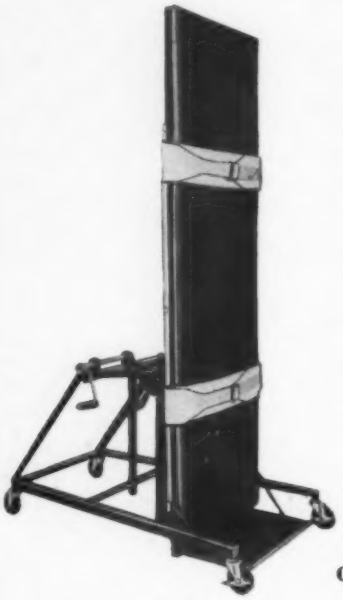

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THE JOURNAL OF THE ASSOCIATION FOR PHYSICAL AND MENTAL REHABILITATION

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A TRAINING COURSE OUTLINE FOR HOSPITAL PERSONNEL IN PROPER BODY MECHANICS AND PATIENT SELF-CARE

RICHARD G. FOWLER, B.S., C.C.T.*

BERNARD H. WEBER, B.S., C.C.T.*

WILLIAM KOOS, B.A., C.C.T.*

Introduction

Several years ago a corrective therapist at this hospital noticed that one of his patients, a stroke case of several years duration, was almost totally dependent on ward personnel for taking care of his daily needs. The patient was being lifted in and out of bed, being bathed and shaved, and was using a bedpan instead of going to the bathroom himself. The therapist could not understand why the patient required so much nursing care since his performance in exercise routines showed that he should have been able to perform many of these activities by himself if given proper instruction. The therapist undertook to provide such instruction in self-care with the result that the patient, after a short time, could perform them for himself thus saving the ward personnel about one hour and a half of time and providing the patient with a very real boost to his morale. This and several other cases convinced the corrective therapy section of the need for setting up a program to train nursing service personnel in techniques of self-care in order that instruction begun in corrective therapy could be carried over and put into actual operation on the ward. Because there was a concomitant need to teach proper body mechanics involved in ordinary nursing routines, the two subjects were combined into one course.

After several years of research and providing in-service training to personnel concerned with patient care, a five hour training course has evolved which aims to provide instruction in the proper use of the body in performing everyday physical activities to prevent injury and wasted energy (body mechanics); and to provide instruction in the training and motivation of persons with disabilities to perform as many of ther daily living requirements (self-care) as possible.

Course Outline

The first fifteen minutes of the course are devoted to a suitable introduction of the corrective therapy instructors and an outline of the course as it is to be presented:

*Mr. Fowler is Chief; Mr. Weber, Assistant Chief; and Mr. Koos, staff member of the Corrective Therapy Section, GM&S Hospital, Veterans Administration Center, Los Angeles 25, Calif.

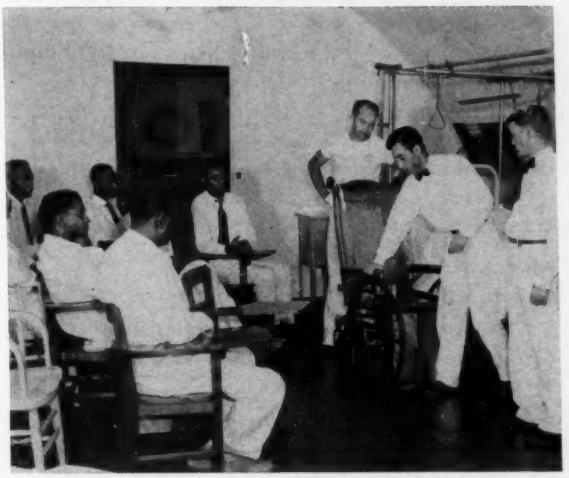
First Hour

Body Mechanics (30 *min.*)

1. Reasons and purposes for teaching body mechanics.
2. Basic mechanics of the human body.
3. General principles of lifting.

Class Participation (15 min.)

1. Questions from the class.
2. Practice principles of lifting.*



A Typical Class Demonstration

Second Hour

Practical Problems In Body Mechanics (30 *min.*)

1. Taking temperature orally.
2. Taking temperature rectally.
3. Taking pulse readings.
4. Opening and closing a sliding window.
5. Making a bed.
6. Lifting a patient slumped in a chair.
7. Moving patient from the floor to a chair or to his feet.
8. Moving a patient to side of bed.
9. Moving a patient to opposite side of bed.
10. Moving a patient toward head of bed.
11. Moving a patient toward foot of bed.
12. Lifting a patient from lying to sitting position.
13. Moving a quadriplegic from bed to wheelchair.
14. Moving a quadriplegic from wheelchair to bed.

15. Moving a paraplegic from bed to wheelchair.
16. Moving a paraplegic back into bed.
17. Moving a hemiplegic from bed to wheelchair.
18. Moving a hemiplegic back into bed.
19. Moving a patient from wheelchair to toilet and back to wheelchair.
20. Moving a patient from wheelchair to bathtub and back to wheelchair.

Class Participation (30 *min.*)

THIRD HOUR

Patient Self-Care (40 *min.*)

1. Positioning patient (10 min.)
   a. prevention of pressure sores.
   b. prevention of contractures.
2. Moving from place to place in bed (15 min.)
   a. the hemiplegic patient.
   b. the paraplegic patient.
   c. stiff, sore back cases.
   d. miscellaneous cases (such as special orthopedic).
3. Moving from bed to wheelchair to bed (15 min.)
   a. the hemiplegic patient.
   b. the paraplegic patient.
   c. stiff, sore back cases.
   d. miscellaneous cases (such as patient in body cast).

Class Participation (20 *min.*)

FOURTH HOUR

Patient Self-Care (30 *min.*)

1. Moving from wheelchair to toilet to wheelchair (15 min.)
   a. the hemiplegic patient.
   b. the paraplegic patient.
   c. stiff, sore back cases.
2. Moving from wheelchair to bathtub to wheelchair (15 min.).
   a. the hemiplegic patient.
   b. the paraplegic patient.
   c. stiff, sore back cases.
   d. miscellaneous cases.

Class Participation (30 *min.*)

FIFTH HOUR

Patient Self-Care

1. Bracing and other mechanical aids (10 min.).
   a. drop foot brace.
   b. knee brace.
   c. back brace.
   d. shoulder brace.
   e. wrist and finger brace.
2. Crutch and cane gaits (10 min.).
   a. crutch gaits.
      1. three point.
      2. four point.
      3. two point.
      4. rocking chair.
      5. shuffle, swing-to and swing-through.
   b. cane gaits.
      1. one cane methods.
      2. two cane methods.
3. Wheelchair and gurney propulsion (10 min.).
   a. wheelchair propulsion.
      1. hemiplegic patient.
      2. paraplegic patient.
      3. miscellaneous (such as bilateral amputee).
   b. gurney propulsion.
      1. with large wheels in front.
      2. with four small wheels and individual locks.

Class Participation in general review of the course (30 min.).

1. body mechanics.
2. patient self-care.

HINTS FOR INSTRUCTORS

In adapting this course outline to groups of varying sizes, it has been found feasible with small groups to use one of two methods: (a) for the instructor to demonstrate the activities himself during the first half hour and have the class perform them during the second half; or (b) to utilize the whole hour for directing the class in the performance of these activities. With large classes, the latter method is essential if all topics are to be covered within the prescribed time limit.

TRAINING GUIDE

A training guide (1) is provided each member of the class. The technique for accomplishing each skill is described so that the volume provides the student with a ready reference. In the body mechanics section for example, the method of moving a patient from the floor to a chair or to his feet is described as follows:

Analyze patient's position, disability and your ability to lift patient by yourself. Get help when necessary. Get the person onto his back and away from any obstacles. Stand at the feet of the person and face his head. Assume a half-kneeling position with one knee between his legs. With head up and back straight, grasp patient by wrists or behind upper arm and pull him to a sitting position by leaning your body backward. (If patient has a painful upper extremity, he must be grasped under the armpits.) With your hands under armpits or behind arms, pull the patient close to you and shove off your front leg. Extend both legs and move your center of gravity to the rear as you lift up. You must compensate for the additional weight in front of you by overleaning to the rear, balancing both bodies over your base of support. When in a standing position you may release patient, or maneuver a wheelchair around for him to sit in if needed.

---

*In all class participation exercise, members of the class are paired off for the practice of skills. The class members alternate as instructor and pupil.

(Continued on Page 44)

A PRELIMINARY STUDY OF THE DYNAMICS OF FORCE AS APPLIED TO KNEE INJURY IN ATHLETICS AND AS RELATED TO THE SUPPORTING STRENGH OF THE INVOLVED MUSCULATURE*

KARL K. KLEIN, F.A.C.S.M.,C.C.T**

A problem dealing with the area of knee injury and possible preventative methods may become involved in theoretical hypothesis, yet it seems that the magniture of yearly incident and complications of such injury should stimulate interest in the studying of all aspects in the hopes that eventually basic causes may be found that will possibly lead to injury reduction. It is with this thought in mind that the following materials are being presented as a new concept to the prevention of knee injury in athletics (football).

This study is involved in the areas of muscular strength relationships of the supporting musculature of the knee and gives some preliminary observations concerning the problem from the standpoint of structural support of the joint and partially indicates the need for reconsideration in conditioning and reconditioning emphasis if muscular structure and strength are vital to its protection.

The basic hypothesis fostered here is that the hamstring musculature group is more closely related to the stabilization of the knee joint in the prevention of the "medial hinging effect" than has previously been anticipated. Studies related to this problem have significant relationships *i.e.,* studies of Clarke, Mathews and Shay indicate that:

1. Hamstring strength loss or lack of strength loss in activity indicates the general fitness status of the individual, thus reflecting muscular protective quality (1).

2. These researchers also have found that the higher the strength level of the hamstring muscle groups the higher the fitness level before activity and less strength loss resulting from activity (2).

3. Studies (3) related to the problems of reconditioning of football knee injuries indicate that the hamstring muscle groups atrophy at the same rate as the quadriceps in injury situations and thus become an important factor in the rebuilding process.

4. The strength relationship between the quadriceps and hamstrings indicates hamstrings are only about 60% as strong as the quadriceps in a large group of athletes tested (4).

Anatomically, the knee is in position of maximum protection when in a straight locked position (5) but at the same time this is impractical from the standpoint of function as needed by the athlete. The strength curve studies of Clarke and Bailey (6) throw an important light on this problem in that the quadriceps progressively weaken in their strength percentage from 115°-180° of extension while the hamstrings deviate only slightly in strength percentage from maximum in the same space movement (Fig. 1).

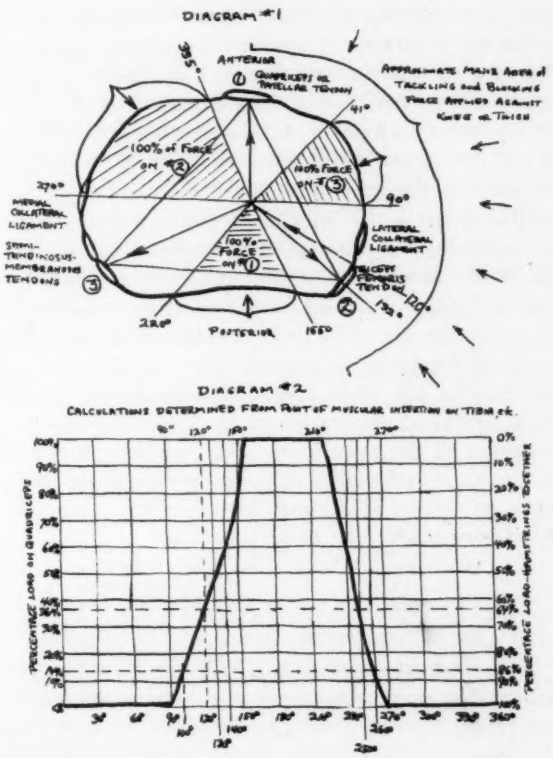


DIAGRAM #1
ANTERIOR
APPROXIMATE MAIN AREA OF TACKLING AND BLOCKING FORCE APPLIED AGAINST KNEE OR THIGH
100% of FORCE ON #2
100% FORCE ON #3
100% FORCE ON #1
MEDIAL COLLATERAL LIGAMENT
SEMI-TENDINOSUS-MEMBRANOSUS TENDONS
LATERAL COLLATERAL LIGAMENT
BICEPS FEMORIS TENDON
POSTERIOR
DIAGRAM #2
CALCULATIONS DETERMINED FROM POINT OF MUSCULAR INSERTION ON TIBIA, ETC.
PERCENTAGE LOAD ON QUADRICEPS
PERCENTAGE LOAD-HAMSTRINGS BOTHER

A full range of mobility is needed for maximum function but at the same time stability and muscular protective qualities will vary during such movements as indicated by Table 1. From the standpoint of strength, it may be pointed out that tensiometer strength tests of the quadriceps is greatest at 115° of

*Paper presented at the fourth annual meeting of the American College of Sports Medicine, June, 1957. Reprinted from *Medicina Sportiva* 13:7:327-334, July, 1959 with kind permission of the Editor.

**Dept. of Physical Education, Univ. of Texas.

MUSCULAR STRENGTH AT ANGLE OF MOVEMENT (CLARKE-BAILEY)

*(% total leg strength at various angles)		Quads & Hamstrings function as extensors or flexors			Quadriceps and Hamstrings function in Extension		
		115°	140°	150°	160°	170°	180°
Knee Flex.	Tens. lbs.	75 (34%)	100 (44%)	103 (47%)	105 (56%)	105*(52%)*	103 (59%)
Hamstrings	% of Max.	71%	95%	98%	100%	100%	98%
Knee Extend	Tens. lbs.	140 (65%)*	125 (55%)	112 (52%)	100 (47%)	80 (43%)	70 (40%)
Quadriceps	% of Max.	100%	89%	80%	71%	57%	50%
Total Flex.	Ext. Strength	215	225	215	205	185	173
Total % of Maximum		95%	100%	95%	91%	82%	76%

*In this study hamstrings strength is 75%** of quadriceps strength. It is to be noted the difference in strength relationship here as compared to the previously mentioned study.

**This difference in hamstring percentage of quadriceps strength—Football study Hamstrings 60% of quadriceps strength—H. H. Clarke study Hamstring 75% of quadriceps strength—may be due to the fact that the major emphasis in athletic conditioning for leg strength building, has been to strengthen the quadriceps *with little emphasis* or concentration on the hamstring muscle groups. This emphasis could be responsible for the difference between the groups tested.

TABLE I

extension and the hamstrings at 165° of flexion, but in the actual motion situation the hamstrings as in running, etc., influence on extension action of the knee, in the terminal phase and offer a higher percentage of muscular protection to the joint in terms of the total strength potential of the thigh muscular groups supporting the joint. From the standpoint of elementary strength comparisons at various angles of test the quadriceps at terminal extension (vastus medialis) are only about 50% as strong as the total group at the angle of maximum strength (115°), while the hamstring groups are closer to maximum strength at the terminal angle (165°-180°).

The dynamics of motion eventually have to be considered in a study of this nature. This preliminary analysis recognizes other factors for future study but will draw the conclusion here from calculations made by the use of elementary statics and a graphic study of the forces as plotted. It is to be further assumed that the forces hypothetically applied are at right angles of application at the point of muscular insertion of the knee joint. The stability (strength) of the knee in function may vary widely at the same angle of flexion at the moment of impact. This may be influenced by one or two factors:

1. Whether the joint is in a state of flexion, or
2. In a state of extension movement, or possibly
3. In a semi-relaxed state.

A fundamental conclusion is drawn here by indicating that as the knee goes into varying degrees of flexion (in motion), the quadriceps are in a state of decontraction thus losing power through reciprocal action. In this situation it may be assumed that the hamstrings because of their power action, are assuming the major support of the knee joint as related to "medial hinging" action and may even be responsible for reducing the external rotation force of the tibia in forceful action *i.e.*, semimembranosus and semitendinosus strength checks external rotational speed of the tibia or the femur in forced action of application. Conversely, it may be assumed that a knee in flexion, a weakened position, becoming stronger as it powers itself into extension, and the dual action of the quadriceps as well as hamstrings offers greater muscular protection because of the total "active power" of the muscular groups thus reducing the potential of "medial hinging action." The combined action of the quadriceps and hamstrings in extension motion are in positive functional cooperation in about the terminal 20° of action of the foot in contact with the ground as in motion. *i.e.*, (in Fig. 1) 115°-150° maximum muscular protection is only 65% of "total strength" because the hamstrings are functioning as flexors while at 160°-180° both muscle groups are functioning as extensors and give 99% of total muscular function.

References to the problem of structural strength of the knee joint and related ligaments will only be considered in this study as follows:

1. As the related structures are strengthened, it is practical to assume that ligament structures will react in the same manner, providing they are not overstretched in the process *(i.e.*, deep knee bends, duck walk or laterally rotating the knee to make it more flexible).
2. That the best protection for ligament strength is muscular strength.
3. That as the knee is flexed the lateral and medial ligaments start into a decontraction relationship and therefore offer a lessening protective effect as the knee becomes more functional through motion. When the knee is flexed *to its mid position* (9) all of the ligaments are in a phase of equal relaxation and it may be concluded they offer a minimum of *protection* against injury at this point.

The Application of the Theory

The theory of Angles of Force, as applied in this study is drawn from the hypothesis that the knee is in a straight position at the time of contact but by following the relative strength measures in Table 1 it will enable you to visualize the varying degrees of strength level at other angles of tested strength for comparison. Although the position of 160°-180° extension does not indicate the highest level of strength, it may be considered that there is more active contraction (and stabilization) from both muscle groups involved in the extension process at this terminal phase of action thus activating a greater total of balanced supports while at lesser angles the antagonistic muscular action, to either flexion or extension, is in a phase of decontraction thus reducing active muscular support of the joint. Diagram 1 represents a cross section of the knee joint just above the muscular tendon attachments of the (1) quadriceps (2) biceps femoris and (3) semimebranosus and semitendenosus.

Effort has been made to keep the attachment relationships as accurate as possible so the force study will demonstrate a maximum degree of accuracy in its application here (Diagram 1). The cross section of the joint indicates that the supportive protection of the knee, through active muscular support, becomes a problem of activating the muscular groups to a state of high condition so that the joint is held in a state of maximum tension thus restricting or reducing the lateral components of movement resulting from pressure of force, *i.e.*, tackling or blocking. By following through the shaded areas of the diagram it is possible to observe how a direct force at that point is reflected to the supporting muscular groups of the knee. Further analysis can be made by the use of force chart (Diagram 2), which may be interpreted as follows:

1) The left column represents the percent (%) of force absorbed by the quadriceps musculature (patellar tendon).

2) The right column represents the percentage (%) of force absorbed by the total hamstring musculature, both medial and lateral, (except for the shaded areas of Diagram 1 which indicate force application at one specific point, *i.e.*, 1, 2, 3, which is indicative of the total force being reflected to one specific muscle or group.)

3) The lower line represents the angle at which the force is applied. Move up the column until Angle Line and Force Line cross; at this point read to the left to determine percentage of quadriceps support and to the right for percentage of total hamstring support. This latter reading has then to be approximated as to the proportion of support that is to be distributed between the medial and lateral hamstring groups. For example, with force applied at 120° (tackle or block), we check where angle and force line cross, and reading to left, quadriceps absorb approximately 36% of Force applied and hamstrings absorb approximately 64% of Force applied. From observation, it may be assumed that of this 64%, the medial hamstring group will be called upon to assume a high percentage of this applied force.

Summary

The basic analysis seems to indicate that, by and large, the musculature of the knee joint, as related to the groupings located on the thigh, points to a major degree of responsibility being placed on the hamstring muscles for this support that will stabilize the knee against the "medial hinging" action that could be responsible for the high incidence of medial ligament and cartilage injury. If such an analysis merits consideration in the problem of injury as well as injury prevention then it may be concluded that consideration should be given to the specialized conditioning aspects as they relate specifically to athletics. Extensive football injury data relating to this problem tends to indicate the predominance of injury where hamstring weakness is present which seems to validate the hypothesis developed here.

The evidence of this preliminary study points to the possibility of expanded efforts in this area of research thus enabling more definite conclusions to be drawn in favor of or against the original beliefs.

Suggested area of additional study related to the problem are as follows:

1. A study of the actual force applied from various angles of attack.
2. The influence of various degrees of knee flexion or extension on the muscular strength integrity of the joint, and
3. The influence of specific conditioning for strength building support and injury reduction potential.

REFERENCES

1. Clarke, H. H., D. D. Mathews and C. T. Shay, The Effect of Pack Carrying on the Muscular Strength of Involved Muscles. *Annual Progress Report 1 to Climatic Research Laboratory, Quartermaster Corps, Dept. of the Army*, 31 Aug., 1953. Contract DA 44, 109, 1137, Ch. 8, p. 57.
2. *Ibid.* Ch. 8, p. 64.
3. Klein, K. K. Unpublished Data, Football Knee Injury Study.
4. *Ibid.*
5. Moseley, H. F., Disorders of the Knee. *Ciba Clinical Symposia*, Vols 5 & 6, Nov. and Dec., 1953.
6. Clarke, H. H. and T. L. Bailey, Strength Curves for Fourteen Joint Movements. *Jrnl. Assoc. Phys, & Ment. Rehab.*, 4:2, April-May, 1950.

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SOME MUSCULAR STRENGTH AND ENDURANCE SCORES OF PSYCHIATRIC PATIENTS

(part I)

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Introduction

During the past decade, there has been a great increase in the range and number of studies concerned with identifying the physical correlates of mental illness. In general, such studies have attempted to identify whether and what endocrine, metabolic or physiologic features distinguish the mentally ill from those not so afflicted.

The present study represents an attempt to explore the relationship between mental illness and another group of physical factors, those generally embraced by the term, "physical fitness." The long range objectives of the present program of research can be expressed by two major questions:

1. Is there any relationship between the presence of mental illness and level of physical fitness?
2. Can a program of systematic exercises contribute to the improvement in psychiatric status of mental patients?

Purpose Of The Present Study

The present study is an exploratory investigation of the first of the two major questions: Is there a relationship between the presence of mental illness and level of physical fitness? Specifically, the interest here was how mental patients would perform on the widely-used battery of tests of physical fitness developed and standardized by Frederick R. Rogers (1).

Procedure

The Concept Of Physical Fitness

While there is currently much controversy and ambiguity on the meaning of "physical fitness" (2, 3, 4) for the purpose of our studies we are confining the meaning of this term to scores obtained on Schneider, Rogers and similar tests. This limited definition has the advantage of including a feature common to all the differing conceptions of physical fitness, namely, assessments of endurance and muscular strength.

The Patient Sample

The subjects in this testing program were 42 male psychiatric patients, of which 11 were from the maximum security unit and 31 were from the admission ward of this hospital. The subjects, randomly selected from a group of 100 patients, were all diagnosed as schizophrenic with various subclassifications. The length of hospitalization of the subjects varied from 3 months to 3 years with the mean hospitalization period being 1.5 years. The subjects ranged in *age* from 18 years to 40 years with a mean age of 26.0 years.

All of these patients were on various medications and different dosage levels. However, in this exploratory study, effects of drug were not analyzed.

The Test Used

The Rogers Physical Fitness test battery was used to assess the strength and endurance of the large muscle groups of the body. This test battery includes six tests of muscular performance and a test of lung capacity. The muscle groups and the tests used to assess each, are presented below:

Muscle Group	*Test Equipment*
1. Forearms	Hand Dynamometer
2. Upper arms	Pull-ups (stall bar)
3. Shoulder Girdle	Dips—Push-ups (Dip bars)
4. Back	Back Dynamometer
5. Legs	Leg Dynamometer
6. Vital Capacity	Wet Spirometer

Scoring

The test procedure yields two different scores: The Strength Index and the Physical Index.

1. *The Strength Index*: This index is computed by totalling the scores from the six strength and endurance tests and the measure of lung capacity. This total score is regarded by Rogers as a measure of potential athletic ability. Rogers provides norm tables which support strength indices for all combinations of sex, age and body weight.

2. *Physical Fitness Index (PFI)*: The Physical Fitness Index is a score arrived at by dividing an individual's achieved Strength Index by the Strength Index appearing in the norm tables based upon the individual's sex, age, and weight. This figure is then multiplied by 100. Thus, a score of 100 is reported as a normal or average population Physical Fitness Index.

$$\text{PFI} = \frac{\text{Achieved SI}}{\text{Normal SI}} \times 100$$

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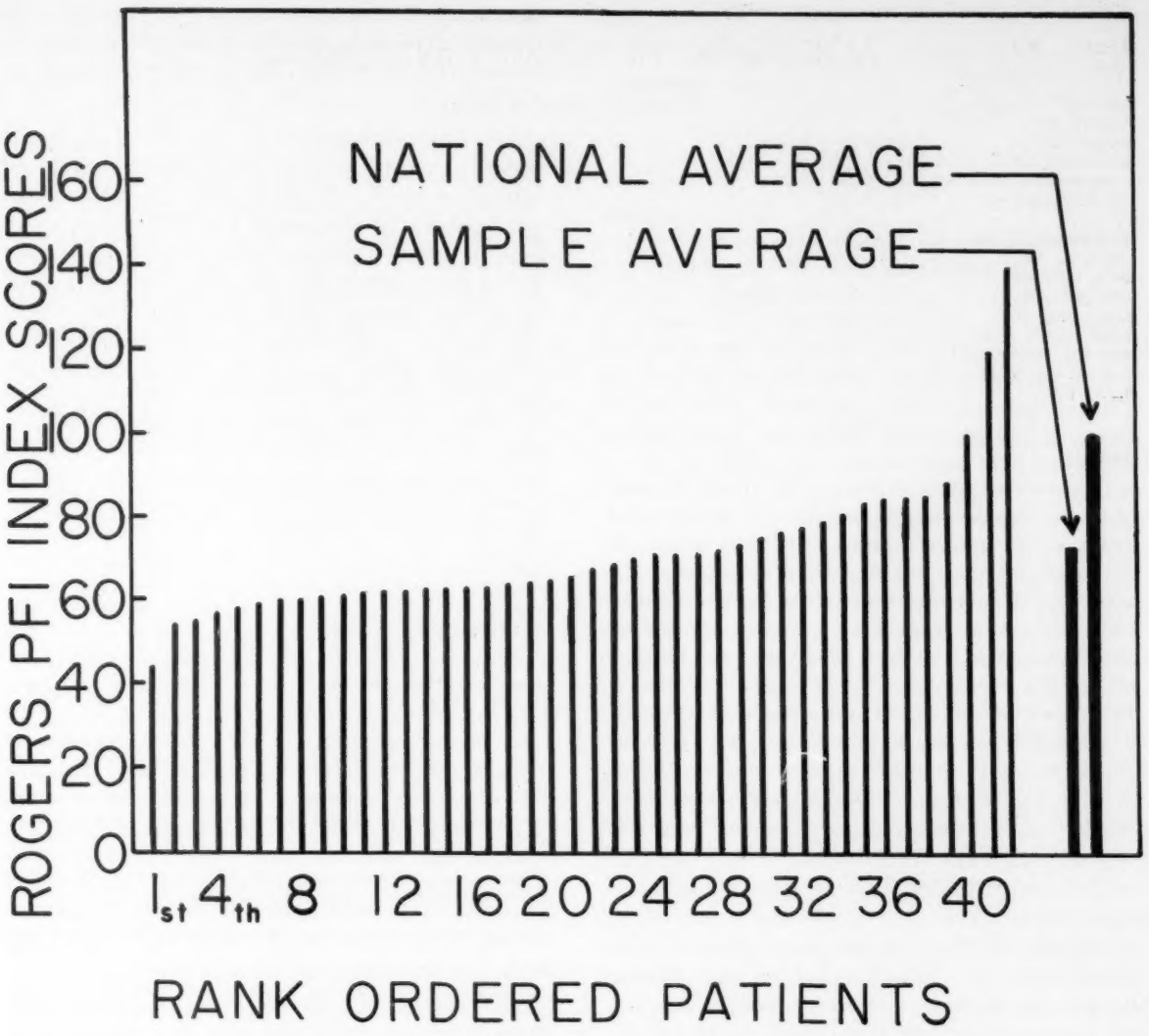

ANALYSIS OF PFI SCORES OBTAINED FROM PSYCHIATRIC PATIENTS

FIG. 1

An example of the scoring for the strength index and physical fitness index is presented in Table 1.

Method Of Test Administration

Prior to formal testing, the tester informally administered the complete test battery to various patients. After suitable experience was gained in the use of this battery with mental patients and their reactions to it, regular testing began.

From preliminary testing experience, the order of testing was arranged so as to prevent undo physical stress on the patient. Accordingly, the following test order was used for each subject (5):

1. Wet Spirometer.
2. Right and Left grip.
3. Back Lift.
4. Leg Lift.
5. Chin (Pull-ups).
6. Age, Height, Weight (information).
7. Dips (Push-ups).

As nearly as possible, all of the testing was done in the morning since this time has been found to be the most suitable (6). The tests were administered by one of the authors, a certified corrective therapist, who has had previous experience in the use of this test battery.

Name: WD
Date:

Medication:

Age, 19
Height, 68"
Weight, 157
Multiplier, 13
Pull-ups, 7
Push-ups, 6

Remarks:

Arm strength, 308
Leg Lift, 700
Back Lift, 300
Left grip, 60
Right grip, 70
Lung capacity, 240
Strength Index, 1678
Normal S.I., 2748
P.F.I., 69

TABLE I

Results

The achieved strength and endurance scores attained by the 42 subjects were compared to the standardized scores in the norm tables which accompany this test battery. This group of patients had a mean PFI score of 70.6 and a standard error of the mean of 2.62. The true mean of this population as estimated from this sample would be expected to lie, 99 times out of 100, between 73.81 and 77.43. Inasmuch as the known mean of the normal non-hospitalized group is 100, this patient sample is obviously far below normal with regard to strength and endurance. In addition, the distribution curve displayed equal distribution of scores from the mean with but one case, 140, being the extreme. PFI scores ranged from a low of 44.4 to a high of 140.

Discussion

Although this study is not comprehensive, nevertheless, there is a strong suggestion that lowered strength and endurance scores characterize hospitalized psychiatric patients. Only 3 patients scored over the norm of 100. These 3 patients were discharged soon after admission. Of the remaining 39 patients who scored below 100 all but 10 still remain in the hospital. It is interesting to remark on the score of 140. This test considers this score to be extremely high. This patient at the time of testing was tense, mute, and nervous. He was tested three times to be sure of this unusual score. He was subsequently transferred to the maximum security unit because of aggression and hostile behavior. As his psychiatric status improved it was noted that the PFI score dropped considerably but still stayed above 100.

As far as could be determined, only one study has been reported in which selected levels of physical fitness of *mental* patients has been subjected to systematic examination. This is surprising in view of the considerable literature on the study of physical fitness (strength, endurance, cardiovascular performance) in normal and in medical, but non-psychotic populations (7).

The single *systematic* study on the level of physical fitness in mental patients was reported in 1934 by Linten, *et al* (8). These investigators administered the Schneider Cardiovascular Test to 99 schizophrenic patients and 25 members of the hospital staff. They report that scores on this test were significantly lower for patients than for staff members. They viewed these findings as reflecting the lowered physical activity of the patients resulting from hospitalization, rather than as a direct expression of psychopathology. However, since the patient sample used contained patients varying in length of hospitalization and since no breakdown of the data was furnished on the relationship between Schneider scores and length of hospitalization, the interpretation of findings offered by Linten and his co-workers must be regarded as an untested hypothesis.

SUMMARY AND CONCLUSION

Forty-two male psychiatric patients, ranging in age from 18 to 40 years were subjected to a systematic evaluation of strength and endurance of the large muscle groups of the body utilizing the Rogers Physical Fitness Index test battery. After standard test procedures were used in the administration of this work-test, Physical Fitness Indices scores, ranging from a low of 44 to a high of 140, were obtained. The mean of 70.60, which this group obtained is a physical fitness index which is 30% below normal standards with regard to muscle strength and endurance.

The present study, growing out of the work of the Physical Medicine and Rehabilitation Service of a large mental hospital, more especially the Corrective Therapy Section, has been directed toward analyzing the basic components of the strength and endurance of mentally ill patients. The findings of this pilot study indicate that there may be a relationship between strength and endurance of individuals and the presence of mental illness. Implicit in the total rehabilitation of the mentally ill is the hypothesis that physical exercise will improve the level of physical fitness of the patient. The pilot study results lead us to believe that this hypothesis is worthy of further investigation. Consequently, further studies are presently in progress to test this theory which we feel has far reaching implications for the care and treatment of the mentally ill.

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CORRECTIVE THERAPY IN GERIATRICS*

JOSEPH H VAN SCHOICK**

Corrective therapy has a very important function in the treatment of the chronic, long-term geriatric patient, and in health maintenance programs for the geriatric member. In the Veterans Administration and outside, in hospitals, in homes for the aged, in other private institutions and in private homes, this new profession together with manual arts therapy, educational therapy, occupational therapy and others, has a potential which can become signficantly important in meeting a crucial problem of modern society.

Cady and Leavitt (1) express some thoughts that are appropriate to this discussion. They point out that:

> Our nation is entering a new phase in our social consciousness, and the conceptions of rehabilitation as a charity thirty years ago is rapidly changing to an economic and social obligation. Twenty or more of our States, representing over half of the population of this country, have established official commissions to study the process of aging from social, economic, medical and rehabilitative viewpoints. Considerable research on aging has been conducted by universities, foundations and by Federal, State and local government institutions. Our increasing proportion of older population is increasing faster than the application of solutions of the complex problems that must be met in the personal adjustment of these citizens. Our task extends beyond community service for those who may need a supporting arm to see them through the hazards of old age, because something more must be done to help the community to help itself. By specific rehabilitation of any of the chronically ill, we can assist them to help themselves to live up to their own limitations, and then to share their rich resource of life's experiences with others needing their help.
>
> Not all people within the gerontology meridian of life are chronically ill, but of those over 60, up to one-half are chronically ill and need specific medical treatment. Others who still enjoy the greatest possible measure of good health must have opportunities to exercise their capabilities for self-realization and independence throughout their later years to strengthen the community in which they live, or they more quickly become family or community problems. If we fail to recognize the challenge as being a part of our present social-economic situation, then the growing number of ineffective older people will become such a tremendous burden that medical facilities will be inadequate even by standards of today.

Not long ago the United States Public Health Service completed an extensive survey on the health of 2000 white families. The study showed that in every 1000 persons over 45 years of age, one out of four is chronically ill. As the dramatic discoveries in medicine and allied fields help to lengthen man's span of life, an increasing percentage of our population will be in the geriatric group, and have the chronic conditions for which remedies have not yet been found.

As an illustration of the wide spread interest in this problem, the Florida Dental Association, a few days ago, met right near here, and spent several days in conference on the theme "Aging and the Aged." One of the speakers, Dr. Joseph McCarthy, of Omaha, Nebraska, a member of the Committee on Aging and the Aged of the American Medical Association and a member of the American Geriatric Society, discussed the gradual breakdown, in the aged, of the digestive tract and their consequent need for properly prepared foods. Another speaker, Dr. Harry Sicher of Loyola University spoke on atrophy in the aged, especially in jaw muscles. You see, we in corrective therapy, manual arts therapy, educational therapy and other physical medicine and rehabilitation therapies, who are primarily interested in health, musclature, mobility and activities of daily living have a very timely concern in this problem of geriatrics.

The Veterans Administration has initiated a comprehensive program of research in Aging. A special division of Research and Education, headed by Dr. Charles C. Chapple, former Chief of Clinical Studies Division, is now established to focus skills of specialists on problems of aging. Chemical, nutritional, psychological, biophysical, social and clinical aspects will be considered as a whole, as these affect the individual.

Last week's issue of *Vanguard,* our VA Central Office News Bulletin, had a front page article on this research. It gave a list of projects which have recently been announced by the Administrator. I think you will be interested in knowing the scope of this effort.

> The Administrator said: "VA's research in this field is now established to an extent that could significantly affect the health and well-being of the people of the world in their later years. Our medical staff is learning more about almost every aspect of aging, especially the major diseases such as high blood pressure, hardening of the arteries, heart attack, and strokes, and VA is becoming better able to combat the psychological aspects of aging. Today, of the more than 22 million veterans, only about 6 million are over 45, but in 12 years there will be only 6 million veterans under 45. Currently, about half of the VA's hospital patients are 55 years or older.
>
> In an effort to meet this situation, many of the VA's nearly 6,000 research projects deal with aging. Collectively, these now cover every medical condition that increases with age.
>
> A most varied and extensive VA attempt to correlate physical and mental changes with age in individuals is in progress at the Martinsburg, West Virginia, VAC, where the rate at which the function of the thyroid gland diminishes with age has been established.

*Presented at Third Tri-Organization Conference, Miami Beach, Fla., July, 1959.

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At Brooklyn New York VA outpatient clinic, a screening program for glaucoma, the greatest cause of blindness in old age, is under way as a start toward establishing facts about this disease.

The effect of diet is being observed in domiciliary residents at the VAC, Los Angeles. Chemical and clinical aspects of diet are being investigated at the West Roxboro, Massachusetts, VAH.

By correlating hearing acuity with age and health of older veterans at the West Side VA Hospital in Chicago, VA doctors hope to determine whether hearing decreases regularly after 40 years of age. Mouth and dental changes with age are being studied at the Wadsworth, Kansas, VAH.

Representative of the numerous studies of the individual as a whole—his physical condition, emotional makeup, diet, habits, and life history—is the study of Spanish-American War veterans at the Boston VA outpatient clinic.

Many of these octogenarians seem to have been endowed with unusual vitality and an outlook on life that keep them young far beyond their years. Perhaps our studies will help other veterans and citizens at large benefit by their experience."

The Veterans Administration also has an Advisory Committee on Problems of Aging composed of outstanding leaders in science and medicine. A VA prospectus (2) has just been published, containing the papers presented by these distinguished gentlemen at a meeting of the Committee in May 1958. One of these papers (3) presents a very interesting concept of three separate forms of aging. They merit repeating here, because the more we understand the nature of the problem we are dealing with, the better prepared we will be to develop techniques to contribute to the pattern of treatment required:

There are three separate forms of aging that enter into the decline of vital functions. The first may be referred to as secular changes. These are forms of deterioration which appear as a result of the simple lapse of time. The concept presupposes ideal conditions for the individual and for each separate organ. It can be expressed by saying that when there are no untoward developments to impair health, the average age of death should approximate 125 years, according to the physiologist, Anton J. Carlson.

Aging, therefore, may be defined as a gradually increasing discrepancy between the demands of specialization by the tissue and the available metabolic support. Since most tissues are dependent upon their blood supply for nourishment and since natural and secular aging is a slow progressive decline of function, these regressive changes in the tissue are in general correlated with changes in the blood supply.

The second type of aging is that which occurs as a result of accelerating factors. The organs thus affected show changes similar to those of secular aging but they are more pronounced and occur at an earlier age. Examples of accelerated aging are found in the vascular system of patients with hypertension, in the weight-bearing points subjected to excess weight or the strain of heavy labor, or are found in the lungs, which are affected by emphysema. Accelerated aging also occurs in the breast, uterus, and prostate following castration. These accelerated forms of aging may be termed senescent changes. The organ affected is out of step as regards the severity of its decline with the chronologic age of the individual.

The third form is a pathologic complication of aging. It comprises the majority of the geriatric diseases, the two major forms of which are atherosclerosis and cancer. There is much uncertainty in regard to the etiology of many geriatric diseases, but it is important to point out here that there are two general principles that apply to their causation. Some of them, like osteoarthritis, malignant hypertension, and neoplasia, are apparently a reaction of the affected tissue to accelerated aging, often exhibited as an attempt to compensate by fibrous repair or parenchymatous regeneration for the attrition of aging. Others, like reinfection pulmonary tuberculosis in white men beyond the age of 50 years, senile bronchitis and atherosclerosis, are diseases of separate etiology that tend to afflict senile organs.

When Dr. Gerard, Chairman of the Advisory Committee on Problems of Aging, introduced the first speaker at the meeting I referred to, he concluded his remarks with this statement:

The objectives of research in aging are *first*, to keep people alive; *second*, to keep them alive and healthy; *third*, to keep them alive, healthy, and able to function at the level of human intelligence; *fourth*, alive, healthy human, and able to interact effectively within the social milieu.

Corrective therapy has a particularly significant place in the treatment program of chronic long-term-geriatric patients because of its very nature. In our Physical Medicine and Rehabilitation Orientation Material Pamphlet, sent to field stations a few weeks ago, Corrective Therapy is defined as a "treatment process in which the therapist is conscious of the patient as a whole person rather than any individually affected part. The philosophy of treatment, therefore, stresses working with as well as on the patient through cooperative relationships in which the therapist teaches and directs while the patient himself accomplishes the desired objectives. The activities are selected to aid the patient to mobilize his resources to help himself, the ultimate objective being the optimal rehabilitation of each patient."

If we are to prevent the aging individual from succumbing to the chronic conditions which inevitably plague him in later years, we must provide judicious activity of both a physical and a mental nature. The motivation to exercise, in spite of the patient's skepticism, fears, and possible discomfort, becomes one of the most important preliminaries to successful treatment.

Corrective therapy, important as it may be, can not work alone. Cady and Leavitt stressed this point in the article I referred to at the beginning of my talk. They said:

A team approach is most practical and fundamental to total resolution of the complex problems of a person with chronic illness. Thus, the various disciplines—medicine, sociology, psychology and economics are brought together under the medical medium—the physician, nurse, dietitian' physical therapist, corrective therapist, occupational therapist, speech therapist, psychologist, vocational counselor, educational therapist, prosthetist, manual arts therapist, recreational director and others—to approach the disabled as a whole individual in affecting the problems of his total environment to restore him as a useful person around the home or as a wage earner.

The reason for bringing you all this background information is to emphasize the challenge that faces corrective therapy, as a profession; and in fact every one of you, as therapists. No matter where you work, in a large hospital or a small one, in the VA or in other institutions, you are bound to be involved increasingly in treatment programs for the older patient. These may be active treatment programs, or maintenance therapy, or both. If this convention alerts you to the need for study, planning and development of medically significant exercise activities for geriatric patients, it will have accomplished its major objective.

Many stations have been faced with this problem for several years and have found that Physical Medicine and Rehabilitation is the backbone of their treatment plan. It is encouraging to know that corrective therapists in many cases have shown the interest and initiative in this problem which led to broader multidiciplinary efforts, and that these have accomplished surprising results.

Many stations have made an excellent start on geriatric programs. I wish time permitted me to mention them. But all this is to prologue to the further development of techniques and activities in corrective therapy and the other therapies in years to come. This is your Number One problem and challenge. It can't be put off on the plea that we need more personnel. It must be done now with what we have to work with. Then as the results become apparent, and the chronic-geriatric load increases we will get the additional staff to carry on.

My final word is faith—faith in our own potential to help the patient, and faith in the potential of the patient to help himself. No case is hopeless. Let me close with an illustration of persistence in treatment, and its reward, taken from the last Physical Medicine and Rehabilitation Semi-Annual Report of one of our field stations:

The experience of a 79 year old Spanish-American War veteran and his rehabilitation problem almost needs to be seen to be believed. He first came to this hospital in 1951 for peripheral vascular disease and had a bilateral lumbar sympathectomy. His next pertinent admission was in June 1953, when a diagnosis of duodenal ulcer was made and patient had a hypertension of 220/110. Because of cataracts which almost made the patient totally blind, he had a removal of the cataract in the left eye in March 1957. Because of gastric retention, in October 1957, he had a gastroenterostomy and bilateral vagectomy and had 2000 cc. of blood during this period. Because of poor vision, he fell down the stairs in April 1958, suffering an inter-trochanteric fracture of the left femur and on May 2, 1958, had a closed reduction with internal fixation with a Smith-Peterson nail and Thornton plate. Operatively and postoperatively he required 2500 cc. of blood. Surgery had been delayed because patient was disoriented preceding surgery. Patient received our usual program of early ambulation exercises beginning on the day or the day following each surgery. The patient was demanding and uncooperative, and even attempts at parallel bar ambulation were fruitless and he was discharged to his home after two months. Within a week he was returned to the hospital for acute urinary retention; he had been suffering with chronic prostatism. On July 15, 1958, he had a transurethral prostatic resection and preoperatively and operatively, received 2000 cc. of blood. He was home for one month thereafter and then returned to the hospital for frank gangrene in the right lower extremity and on September 9, 1958, had a right A.K. amputation and in a period of eight days, received 3000 cc. of blood. In December 1958, he had the cataract extracted from the right eye. In spite of all the difficulty that we had with this patient in securing his rapport and cooperation, we did not give up trying, and the two corrective therapists deserve a great deal of credit. For some unaccountable reason, the patient made a complete reversal and became very cooperative. Because of his desire and drive, in spite of his age, he was furnished with a pylon as the first step in order to see what could be accomplished. On February 10, 1959, the patient returned to his home CBOC.

The following remarks were noted in his summary:

1. Vision still was limited. As of this report he recognized the Chief PM&R at the farthest point of seven feet and then because he wore glasses and the color of his shirt which patient remembered seeing before lunch.
2. Residual discomfort from old fracture of the left femur, plus weakness.
3. Flexion in left knee limited to 80° and knee extension against gravity with a resistance of only five pounds.
4. Vascular system of a 79 year old man.

The following were accomplished:

1. Complete self-care from bed to wheelchair, including putting on pylon.
2. Crutch ambulation with pylon with comparative safety, though standby assistance was desirable.
3. Ability to climb stairs with pylon, crutches and handrail and standby assistance.
4. Can walk with cane and pylon with standby assistance.

Gratified by our accomplishment and because we felt the patient deserved it, he was furnished a permanent prosthesis and returned to this hospital in April 1959, for training in its use. He is experiencing no difficulty in managing the free knee joint and his ambulation should continue to improve. He has sold his house which he has occupied for the past 50 years, and will leave for Arizona, after completion of his training, to live with relatives.

REFERENCES

1. Cady, Lee and Lewis A. Leavitt, Geriatrics—Treatment, Research, Rehabilitation. Veterans Admin. Dept. of Med. and Surg., Info. Bltn 10-110.
2. Geschicter, Charles F., Some Fundamental Aspects of the Aging Process. In *V.A. Prospectus, Research in Aging*. Washington: Veterans Admin., 1959.

STUDY ANTI-DEPRESSIVE DRUGS IN NP TREATMENT

Use of three newer anti-depressive drugs in treatment of mental and emotional illness is being evaluated in a large-scale controlled study by 37 Veterans Administration hospitals. The research, a six-months project, will include some 440 patients, of whom about a third are women veterans. The treatment evaluation is part of the VA's large-scale studies of chemotherapy in psychiatry. Chairman of the executive committee for the studies is Dr. J. F. Casey, director of psychiatry and neurology for the VA, in Washington, D.C. The drugs being used are imipramine, isocarboxazid, and dextroamphetamine sulphate.

The 37 participating VA hospitals are in the Bronx, Manhattan, Buffalo, Montrose, and Northport, N.Y.; Los Angeles, Long Beach, and Sepulveda, Calif.; Brockton and Northampton, Mass.; Minneapolis; Seattle and American Lake, Wash.; Ann Arbor and Battle Creek, Mich.; East Orange and Lyons, N.J.

Also Houston, Tex.; Augusta, Ga.; Denver; Bay Pines, Fla.; Biloxi, and Jackson, Miss.; Dayton, Ohio; Durham and Salisbury, N.C.; Salt Lake City; Perry Point, Md.; Topeka, Kans.; North Little Rock, Ark.; Lexington, Ky.; Ft. Meade, S.D.; Tuskegee, Ala.; and Togus, Maine.

TRAINING COURSE—Cont'd from P. 34

Similar descriptions are given for each skill taught in the body mechanics course. In the self-care section, the guide describes each skill in a similar manner. In moving from place to place in bed, the hemiplegic patient, for example, is taught the following method:

To move from one side of bed to the other: Grasp affected hand with good one to position it across the chest in a comfortable position. Slide good foot under the affected one at the ankle. Lift both legs up and to the side you desire to move toward, by using the good leg to move both legs. Reach out with good arm until body weight rests on the forearm and palm of the hand; at same time move good leg out from under affected leg and draw foot up by bending the knee. Lift buttocks and lower trunk up and to new position by pushing down on hand and forearm and good foot. Use head and good shoulder to move upper trunk. Use a pushing or pulling motion, depending on the side toward which you wish to move.

Similar instructions are provided for moving from the prone to the supine position and vice versa.

SUMMARY

An outline of a five hour training course for hospital personnel in body mechanics and patient self-care is presented. The purpose of the course is (1) to train personnel in proper methods of utilizing the body in performing routines of nursing care in order that energy can be conserved and accidents avoided; and (b) to provide instruction in self-care activities for the handicapped which will aid these patients in gaining a measure of independence as well as to relieve their demands for constant nursing care in regard to activities of daily living.

REFERENCE

1. *Guide to Proper Body Mechanics and Patient Self-Care.* Corrective Therapy Section, G M & S Hospital, V.A. Center, Los Angeles 25, Calif.

DYNAMICS OF FORCE—Cont'd from P. 37

7. Hawley, G., *Kinesiology of Corrective Exercise.* Philadelphia: Lea and Febiger, 1937. Ch. 2, p. 31-32.
8. Lloyd, F. S., G. G. Deaver and F. R. Eastwood, *Safety in Athletics: The Prevention and Treatment of Athletic Injuries.* Philadelphia: W. B. Saunders Co. 1936. Ch. 10.
9. Lewin, P. E., *The Knee and Related Structures.* Philadelphia: Lea and Febiger, 1952. Ch. 3.

MUSCULAR SCORES—Cont'd from P. 40

REFERENCES

1. Rogers, Frederick Rand; *Physical Capacity Tests in the Administration of Physical Education.* New York: Teachers College, Columbia University, Contributions to Education, No. 173, 1925.
2. Karpovich, Peter V.; *Physiology of Muscular Activity,* 4th Edition. Philadelphia: W. B. Saunders Company, 1953, pp. 253.
3. Clarke, Harrison H.; *Application of Measurement to Health and Physical Education,* 2nd Edition. New York: Prentice Hall, 1950, pp. 15.
4. *Therapeutic Notes.* Parke Davis Pharmaceutical Laboratories, Vol. 65, March 1958, pp. 57.
5. Mathews, D. K.; *Measurement in Physical Education.* Philadelphia: W. B. Saunders Co., 1958, pp. 338.
6. Morrison, W. A. and A. B. Chenowith; *Normal and Elementary Physical Diagnosis.* Philadelphia: Lea and Febiger, 1950.
7. Hunsicker, Paul and G. Greey, Studies in Human Strength. *Research Quarterly,* 28:2, May 1957.
8. Linten, J. N., M. H. Hamelink and R. G. Hoskins; Cardiovascular Systems in Schizophrenics Studied by the Schneider Method, *Archives of Neurology and Psychiatry,* 32:712-722, 1934.

"From Other Journals"

Unless noted otherwise, all abstracts have been prepared by Philip J. Rasch, Ph.D.

Peter R. Davis, The Causation of Herniae by Weight-Lifting. *Lancet,* 7095:155-157, 22 August 1959.

Lifting a heavy weight may cause hernia of the anterior abdominal wall. It has been suggested that the stomach might be forced into the chest by pressure differences across the diaphragm. That there is a change in intrathoracic pressure during weight-lifting is suggested by the gasp which accompanies it. Pressures were measured in five subjects by placing rubber balloons in the oesophagus, stomach, and/or rectum. The subjects then lifted increasingly heavy weights in the erect position, while stooping, and in the prone position. There was little pressure change when weights were lifted in the erect position. There was considerable increase in pressure when stooping, and there was a direct relationship between the magnitude of the weight and the height of the pressure. To maintain a rise in intrathoracic pressure of the magnitudes encountered, the glottis must be closed, and its sudden opening when a breath has to be taken may cause the explosive decompression of both cavities and account for the gasp. During the subsequent inspiration the descending diaphragm builds up the intra-abdominal pressure while lowering that in the thorax, and again creates a large pressure difference in the two cavities. The high thoracic pressure is reestablished by closing the glottis and relaxing the diaphragm. This suggests that weight-lifting should be avoided in the postoperative period following repair of diaphragmatic lesion.

Carl C. Seltzer, Masculinity and Smoking. *Science,* 130:1706-1707, December, 1959.

A study was made of 252 men who had attended Harvard. Each individual was rated with respect to his masculine component, *i. e.,* the element of masculinity in the individual as indicated by his external morphological features. It was found there is a significant correlation between the strength of the masculine component and smoking habits. Weakness of this component is significantly more frequent in smokers than in nonsmokers, and significantly more frequent in heavier smokers than in nonsmokers and moderate smokers combined. Increased frequency of the degree of weakness of the masculine component is consistent and progressive from nonsmokers to the heavier smokers. Smoking may reflect personality and behavioral traits which are characteristic of an individual's biological make-up. Previous studies indicate individuals with a weakness of the masculine component have an aversion for strenuous exercise, are apt to be low in physical fitness, are less well integrated, and are more inhibited.

Ferdinand F. McAllister, *et al.*, The Accelerating Effect of Muscular Exercise on Experimental Atherosclerosis. *AMA Archives of Surgery*, 8:54-60, January, 1960.

Many articles extolling the virtues of muscular exercise have appeared, and both laboratory and clinical evidence indicate that progressive muscular exercise seems to speed the development of collateral circulation. Ten dogs were placed on a standardized diet. Five ran 5 miles per day, six days a week, on a treadmill at 5% incline, at 5 m.p.h. Five received a minimum of exercise. In general the exercised animals developed higher cholesterol levels and showed a higher degree of atherosclerosis. This may be a species difference and not applicable to the human; on the other hand it may indicate persons with known atherosclerosis and abnormally high serum cholesterol should not participate in vigorous or protracted exercise.

Sterling J. Ritchey, Ligamentous Disruption of the Knee. *U. S. Armed Forces Medical Journal*, 11:167-176, February, 1960.

Traumatic disruption of knee ligaments is a disability event resulting in an unstable knee that becomes a lifelong handicap. A person with an unstable knee can be taught a protective gait and cautioned to avoid unguarded weight-bearing movements, strenuous weight-bearing activity, and uneven surfaces in walking, and the thigh musculature can be strengthened, but a functional knee can be assured only if ligamentous continuity is restored by early reparative surgery.

The cruciate ligaments stabilize the knee primarily in the anteroposterior direction. The collateral ligaments primarily stabilize the knee against angular force. Most ruptures of these ligaments occur from blows rather than from twists. Usually the patient can describe the mechanism and direction of the applied force, and this provides a dignostic clue.

Surgical repair must be performed promptly. The knee is maintained in a plaster cast with the knee flexed at 135-150 degrees postoperatively for 21 days. Supervised motion is then started in flexion only. Six weeks after surgery, extension is initiated. Rehabilitation is slow, and about 16 weeks is required for the recovery of quadriceps power.

A. J. Coppen, Body-Build of Male Homosexuals. *British Medical Journal*, 5164:1443-1445, December 26, 1959.

Sheldon found there were no distinctive features of homosexual physique recognizable from a somatotyping photograph, but stated the majority of homosexuals are recognizable by secondary gynandromorphy. The present investigation was to determine whether homosexuals have an abnormal discriminant androgyny score when judged by the formula 3 x biacromial—1 x bi-iliac diameters (in cm.). There is evidence that this score is correlated with sexual characteristics and abnormalities. A second score was obtanied by applying the fat-bone formula to x-ray pictures of the calf: 1 x bone diameter (mm)—0.4 x fat diameter (mm). This has been shown to differentiate the sexes well.

A group of 31 male homosexuals was measured and compared with controls. They had a lesser biacromial diameter than the controls. The androgny score did not differentiate them better than did the biacromial diameters. The fat-bone indices showed no differences in the two groups. It was concluded the homosexuals have a body-build similar to that of other psychiatric patients and that it could not be related specifically to their sexual abnormality.

Stanley S. Heller, William R. Hicks, and Walter S. Root, Lung Volumes of Singers. *Journal of Applied Physiology*, 15:40-42, January, 1960.

The tidal volume, inspiratory capacity, inspiratory reserve volume, expiratory reserve volume, and vital capacity were measured on 21 subjects with no professional vocal training and 16 professional singers. No differences were observed which could not be explained on the basis of body surface, age, or doubtful measurements. In males the differences in body surface are by far the most significant.

K. M. Smirnov *et al.*, Effect of Competitive Conditions on Respiratory Exchange, Pulse Rate, Arterial Pressure and Efficiency in Athletes. *Sechenov Physiological Journal of the U.S.S.R.*, 45:273-278, 1959.

Cannon attempted to explain the mechanism of the effects of competitive conditions on the athlete by attributing it to increased secretion of adrenalin. Physiologists now study the competitive setting as a conditioned reflex. Pre-start reactions may increase the power to respond by excitation and to react to the operating stimulus. This suggests training increases the potential efficiency of the nerve cells in the strength of their excitatory process as a result of regular reinforcement. Training activities always contain some elements of competition and these should be regarded as conditioned reflex stimuli connected with the exercises.

Improvement in achievements during particularly important appearances occurred only in individuals possessing strong excitatory processes. High pre-start reactions were shown by individuals with a high degree of efficiency under such conditions. Reactions to competitive conditions are more pronounced in adolescents than in adults. Systemaic training did not reduce these differences, and, in some cases, imparted an additional increase to adolescent reactions. Pre-work changes were more pronounced in young athletes han in non-athletes.

In competition pre-start reactions are more pronounced than in the laboratory. Perhaps this results from the secretion of adrenaline and adrenocortical hormone under conditions of competition, suggesting that conditioned reflex reactions are rendered more complex in their effector link under conditions of competition by the increased activity of the endocrine glands. This aspect of functional regulation is almost unstudied. (Translated by R. Crawford)

Joe Pitman, "A Comparative Study of the Effects of a Weight Training Program on Junior High School Boys." M.A. Thesis at Stetson University, DeLand, Florida, 1959.

Forty junior high school boys participated in a weight training program two days a week for a period of six months. Thirty-seven boys served as controls. Test items consisted of the Junior A.A.U. Physical Fitness Tests, anthropometric measurements, and the California Test of Personality, Intermediate Form AA. The experimental group registered a significant difference at the 5% level over the control group in anthropometric measurements and in five of the six physical fitness tests. No significant improvement was found in the personality test. Only one injury occurred during 1,824 exposures to weight training.

James R. Hoon, Adductor Muscle Injuries in Bowlers. *Journal of the American Medical Association*, 171:2087-2089, December 12, 1959.

Bowling is considered a sport of little hazard, but the author describes cases of tearing of the adductor longus at its origin, straining of the adductor gracilis, and a strain in the left groin resulting from bowling. The importance of sound physical conditioning before participating in athletics, proper techniques during the activity, and of follow-through in strong movements are discussed.

Henri L. DuVries, The Orphan of Medicine. *The Illinois Medical Journal*, 116:279-281, November, 1959.

The anatomist F. W. Jones observed that the foot was the most distinctly human part of man's anatomical make-up. Nevertheless, this part of our skeleton has been given only meager study by the medical profession. The first metatarsophalangeal articulation is one of the most complex joints in the body but is usually treated on an arbitrary basis. Five times as many scientific articles have been published on the hand as on the foot, notwithstanding the greater difficulties to which the foot is subjected. More than 60% of our population suffers from painful feet, induced mainly by poorly designed shoes; 80% of the shoes worn are of the wrong size. Once the condition becomes chronic, removal of the cause—the ill-fitting shoe—may be insufficient to alleviate symptoms.

R. W. Engel, Food Faddism. *Nutrition Reviews*, 17:353-355, December, 1959.

The average consumer, particularly the older segment, has difficulty in distinguishing between the sensible approach to good nutrition and the faddist approach. Some glaring mis-truths about nutrition have been presented under the guise of scientific literature. Faddists often claim that modern farming depletes the soil of amino acids and that chemical farming and food enrichment lead to disease. No documentation is offered in support of such claims. Actually the conditions is most cultivated soils favor the rapid formation of nitrates from organic nitrogen compounds. The statement that soil depletion causes malnutrition appears without foundation. A very comprehensive study at Michigan State University failed to disclose any differences in the health and milk production of cattle fed on fodder from soils of low fertility. There is no evidence that deficiency of amino acids can be demonstrated in ruminant species. Protection of the public against food faddists may be obtained by governmental action, better education, improvement in nutritional knowledge of physicians, and presentation of facts by professional organizations.

A. S. Stepanov, Electrogram Changes Produced by Training in Weight-Lifting. *Sechenov Physiological Journal of the U.S.S.R.*, 45:115-121, 1959.

Changes in the motor apparatus appear as the result of constant practice in lifting; a press by a top grade athlete is accompanied by less electrical activity in the muscles than by one in the junior grade. Frequency and amplitude of action potentials decrease as training progresses. The differences in EMGs are not sufficient to explain the difference in the force developed. Apparently they are more closely related to state of training than to degree of attainment. Weaker impulses from the central nervous system become capable of causing a contraction of the same strength as at the beginning of the training period. The mechanisms for the co-ordination of motor unit activity develop and their capacity for synchronous activity during development of maximum muscular tension is improved. (Translated by R. Crawford)

Stevens J. Martin, Statistics and Biometrics in Anesthesia. *Anesthesiology*, 20:881-882, November-December, 1959.

Dunn's survey of 200 medicophysiologic manuscripts revealed that in over 90 per cent of them statistical methods were necessary and not employed, and well over half of the papers should not have been published because of lack of statistical treatment of data. Statistical analysis is a branch of applied mathematics, concerned with the study of populations, variation, and data reduction. Biometrics is the science of the mathematical analysis of biological data. These sciences help the investgator eliminate prejudice and avoid pre-determined conclusions. An appreciation of the importance of statistical analysis and of biometrics will prove of immeasurable value in making sound, reasonable, and critical evaluations of the claims made for drugs, methods, and apparatus.

P. M. F. Bishop, Male Sex Hormones. *British Medical Journal*, 5167:184-186, January 16, 1960.

The true male hormone is testosterone. It is inactive when given by mouth, its effect is transient if given by injection, and it is useful therapeutically only when implanted. Methyltestosterone, however, is an efficient oral androgen. Androgens are administered to provide replacement therapy, to counteract the effect of prolonged or excessfve oestrogen influence in certain functional menstrual disorders, and to encourage protein anabolism. At present the search is for substances with powerful anti-oestrogenic or anabolic action which are weak androgens so that they may be administered to women without fear of masculinizing side effects. Methyltestosterone appears likely to be replaced by the new 19-nortestosterone compounds.

Albert C. Sherwin, Musical Creativeness and Emotional Disturbance. *Bulletin of the New York Academy of Medicine*. 36:58-68, January, 1960.

Since the introduction of dynamic psychiatry, interest has focused on the relationship between creativeness and emotional disturbance. Some believe that creative expression is associated with sublimation of unconscious needs or conflicts, and that successful therapy might hinder the creativity. The creative drive usually appears early in life, and we still await a first-class woman composer. Music is an abstract and highly symbolic medium of expression. It does not communicate until the composer finds a performer. Psychological factors probably determine whether a man is a creator or a performer. Composers as a group do not seem subject to any single kind of illness or to have certain personality traits in general. Kubie said we cannot tell why a man chooses music or some other art form until we have solved the problem of the choice of neurosis. But clinical investigation of the psychodynamics of musical ability and creativeness might reveal how a composer came to choose this medium of expression, even though it did not answer the why.

G. R. Fearnley, *et al.*, Effect of Beer on Blood Fibrinolytic Activity. *Lancet*, 7117:184-186, January 23, 1960.

Various forms of stress increase blood fibrinolytic activity, but until now only alimentary lipaemia and pregnancy have been known to diminish it. An investigation of the effects of alcoholic drinks indicated that beer, cider, and white wine greatly lowered fibrinolytic activity, whereas whiskey, gin and absolute alcohol did not. This suggests some substance produced during fermentation but absent in distilled liquors may reduce blood fibrinolytic activity. Until blood fibrinolytic activity has been proved to be of functional importance, it would be premature to speculate about the significance of these findings, but they do not justify any further restrictions on sufferers from vascular disease.

Ernst Jokl, The Future of Physical Education. *American Turner Topics*, 19, May-June, 1959.

Up to the present physical education has been an empirical subject. Only recently has it been understood that physical education and neuro-physiology alone among the sciences are concerned with the mechanisms by which mind "materializes" mental events through movement. It is only through movements that human minds can communicate with other minds. Tests, measurements, statistics, and other quantitative evidences by themselves mean nothing; it is values alone that determine the status of an event. Kinetic patterns and ethical content are but different manifestations of a single situation. Physical educators must utilize the tradition of the arts, which have always acknowledged the primacy of content over technique.

G. Lawrence Rarick and Gene L. Larsen, The Effects of Variations in the Intensity and Frequency of Isometric Muscular Effort on the Development of Static Muscular Strength in Pre-Pubescent Males. *Internationale Zeitschrift Fur Angewandte Psysiologie Einschliesslich Arbeitsphysiologie*, 18:13-21, September, 1959.

One daily isometric exercise bout at two-thirds maximum tension is as effective in developing wrist fexion strength in post-pubescent males as is more frequently repeated exercise bouts at higher levels of tension. The effects of such exercise program on children and pre-adolescents have not been extensively explored. One experimental group of pre-pubescents trained with a single 6 second bout at two-thirds maximum tension, as proposed by Hettinger and Mueller. A second group trained at 80% maximum tension, with the frequency of daily 6 second bouts varying progressively from 5 on Monday to 8 on Thursday of each week. Both groups achieved substantial gains, but that of the second group was approximately 2½ times as great as that of the first group. The loss in strength for both groups 4 weeks after discontinuing training was significant. Pre-pubescent males may be sensitive to isometric strength building stimuli at tension levels higher than two-thirds maximum.

U. S. SPORTS MEDICINE LITERATURE – 1959

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In preparing the following bibliography the compilers have necessarily been limited to publications available in college libraries to which they had access. They are aware of the fact that there are State and other local journals which they were unable to survey; editors of such publications are invited to assist in the preparation of future bibliographies by forwarding copies of their periodicals for this purpose. No attempt has been made to include Masters' theses and Doctor's dissertations in this bibliography; these materials may be located by use of **Completed Research in Health, Physical Education, Recreation; Health and Physical Education, Microcard Bulletin; Dissertation Abstracts; and similar guides.**

Critical comment by users of this bibliography is solicited.

PERIODICAL LITERATURE

I. Athletic Injuries

A—General

1. Clayton, Mack L. and Gordon J. Weir, Jr., Experimental Investigations of Ligamentous Healing. *American Journal of Surgery*, 98:373-378, September, 1959.
2. Godfrey, Paul E., Athletic Injuries, a Coach's Responsibility. *Scholastic Coach*, 28:46 *et seq.*, March, 1959.
3. Kraus, Hans, Evaluation and Treatment of Muscle Function in Athletic Injury. *American Journal of Surgery*, 98:353-362, September, 1959.
4. Patton, Richard, Football Injuries in a Big 10 University. *Postgraduate Medicine*, 25:702-707, June, 1959.
5. Thorndike, Augustus, Frequency and Nature of Sports Injuries. *American Journal of Surgery*, 98:316-324, September, 1959

B—Mechanics

6. Bingham, Elmer L., Fractures of the Humerus from Muscular Violence. *U. S. Armed Forces Medical Journal*, X:22-25, January, 1959.
7. Erskine, L. Allan, The Mechanisms Involved in Skiing Injuries. *American Journal of Surgery*, 97-667-671, May, 1959.
8. Sawdy, Al, Lateral Flexion of the Neck with Subsequent Cervical Nerve Irritation. *Athletic Journal*, 40:20 *et seq.*, October, 1959.
9. Sieber, P. E., March Fracture of the Os Calcis. *Medical Bulletin of U. S. Army, Europe*, 16:117, June, 1959.
10. Slocum, Donald B., The Mechanics of Common Football Injuries. *Journal of American Medical Association*, 170:1640-1646, August 1, 1959.
11. Slocum, Donald B., The Mechanics of Some Common Injuries to the Shoulder in Sports. *American Journal of Surgery*, 98:394-400, September, 1959.
12. Tyszkawski, Walter, Knee Joints. *Coach and Athlete*, 21:20 *et seq.*, March, 1959.
13. Wang, C. C., W. W. Lowrey, and R. J. Severance, Fatigue Fracture of the Pelvis and Lower Extremity. *New England Journal of Medicine*, 260:958-962, May 7, 1959.

C—Prevention

14. Hall, Wesley W., Football Medical Testing Program. *Scholastic Coach*, 28:37, June, 1959.
15. Fagan, C. B., Do It Yourself—Prevent Injury. *Journal of the National Athletic Trainers Association*, p. 7, January, 1959.
16. Keast, Robert W., Can Skin Diving Be Made Safe? *American Journal of Surgery*, 98:506-508, September, 1959.
17. Kraus, Hans, Prevention and Treatment of Ski Injuries. *Journal of the American Medical Association*, 169:1414-1419, March 28, 1959.
18. McCown, I. A., Protecting the Boxer. *Journal of the American Medical Association*, 169:1409-1413, March 28, 1959.
19. Spague, Robert B., An Analysis of Adhesive Strapping. *Journal of the National Athletic Trainers Association*, p. 11, April, 1959.
20. Thorndike, Augustus, Prevention of Injuries in College Athletics. *Journal of the American Medical Association*, 169:1405-1409, March 28, 1959.

D—Psychological Aspects

21. Griffin, J. H., Tension. Relievers. *Scholastic Coach*, 29:24, December, 1959.
22. Keogh, Jack, Relationship of Motor Ability and Athletic Participation in Certain Standardized Personality Measures. *Research Quarterly*, 30:438-445, December, 1959.
23. Padden, Donald A., Ability of Deaf Swimmers to Orient Themselves When Submerged in Water. *Research Quarterly*, 30:214-226, May, 1959.
24. Peck, T. T., Medical Hypnosis and Athletics. *Journal of the National Athletic Trainers Association*. p. 6, Fall 1959.
25. Seltzer, Carl C. Masculinity and Smoking. *Science*, 130:1706-1707, 18 December, 1959.

E—Treatment

26. Anonymous, Psychology Greatest Aid in Treating Injured Grid Stars, Doctors Declare. *Bulletin, Los Angeles County Medical Association*, 89:51 *et seq.*, October 15, 1959.
27. Anonymous, Ski Injuries. *Spectrum*, 7:26-28, February, 1959.
28. Bennet, George E., Elbow and Shoulder Lesions of Baseball Players. *American Journal of Surgery*, 98:484-492, September, 1959.
29. Burk, R. D., Indications for Therapeutic Modalities. *Journal of the National Athletic Trainers Association*, p. 8, Fall, 1959.
30. Cerney, J. V., Massage and Muscle Soreness. *Scholastic Coach*, 29:32 *et seq.*, December, 1959.
31. Coughlin, Edward J., Knee Injuries in Athletics. *Journal of the National Athletic Trainers Association*, p. 5, June, 1959.
32. Dayton, Bill, Pulled Muscles. *Coach and Athlete*, 21:18 *et seq.*, February, 1959.
33. Denst, John, David W. Senton, and Karl T. Neubuerger, Chronic Encephalopathy Following Minor Head Injury. *AMA Archives of Pathology*, 67:134-139, February, 1959.
34. DeVoe, Arthur Gerard, Injuries to the Eye. *American Journal of Surgery*, 98:384-389, September, 1959.
35. Frackelton, William H., Facial Injuries in Sports. $F=MV^2$. *American Journal of Surgery*, 98:390-393, September, 1959.
36. Gallagher, J. Roswell, About People, Not Injuries. *American Journal of Surgery*, 98:332-336, September, 1959.

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37. Hoon, James R., Adductor Muscle Injuries in Bowlers. *Journal of the American Medical Association*, 171:2087-2089, December 12, 1959.
38. Hunt, Jim, Exercises to Flex the Pelvis. *Journal of the National Athletic Trainers Association*, p. 15, January, 1959.
39. Klein, Karl K., A Group Comparison of Post Operative and Post Injury Cases in Progressive Resistive Exercise. *Journal of the Association for Physical and Mental Rehabilitation*, 13:145-149, September-October, 1959.
40. Klein, Karl K., A Rebuilding Program. *Journal of the National Athletic Trainers Association*, p. 11, January, 1959.
41. Knight, Wesley, Knee Injuries. *Athletic Journal*, 39:29, March, 1959.
42. Marmor, Leonard, Medial Epicondylitis. *California Medicine*, 91:23, July, 1959.
43. Martin, Gordon M., Sprains, Strains, and Whiplash Injuries. *The Physical Therapy Review*, 39:808-813, December, 1959.
44. McCown, Ira A., Boxing Injuries. *American Journal of Surgery*, 98:509-516, September, 1959.
45. Moritz, John R., Ski Injuries. *American Journal of Surgery*, 94:493-505, September, 1959.
46. Moseley, H. F., Athletic Injuries to the Shoulder Region. *American Journal of Surgery*, 98:401-422, September, 1959.
47. Murphey, Francis and James C. H. Simmons, Initial Management of Athletic Injuries to the Head and Neck. *American Journal of Surgery*, 98:379-383, September, 1959.
48. Neubuerger, Karl T., David W. Sinton, and John Denst, Cerebral Atrophy Associated with Boxing. *AMA Archives of Neurology and Psychiatry*, 81:403-408, April, 1959.
49. O'Donoghue, Don H., General Principles Involved in the Treatment of Injuries to Athletes. *Medical Times*, 87:1246-1260, October, 1959.
50. O'Donoghue, Don H., Injuries to the Knee. *American Journal of Surgery*, 98:463-476, September, 1959.
51. O'Donoghue, D. H., Surgical Treatment of Injuries to Ligaments of the Knee. *Journal of the American Medical Association*, 169:1423-1431, March 28, 1959.
52. Quigley, Thomas B., The Care and Feeding of Injured Athletes and Coaches. *Medical Times*, 87:1241-1245, October, 1959.
53. Quigley, T. B., Fractures and Ligament Injuries of the Ankle. *American Journal of Surgery*, 98:477-483, September, 1959.
54. Quigley, T. B., Management of Ankle Injuries Sustained in Sports. *Journal of the American Medical Association*, 169:1431-1436, March 28, 1959.
55. Rachun, Alex, Treating Football Injuries. *Medical Times*, 87:1276-1278, October, 1959.
56. Rasch, Philip J. and Merlin L. Brubaker, Tennis Elbow: A Second Look. *Journal of the American Osteopathic Association*, 59:265-267, December, 1959.
57. Rawlinson, Kenneth, Rehabilitative Knee Injuries. *Journal of the National Athletic Trainers Association*, p. 4, January, 1959.
58. Reno, Joseph H., Athletic Injuries of the Pelvis, Hip, and Thigh. *American Journal of Surgery*, 98:451-456, September, 1959.
59. Reno, Joseph H., The Treatment of Acute Football Injuries. *Medical Times*, 87:1269-1275, October, 1959.
60. Sacho, Jr., Ernest, Penetrating Wound of Both Frontal Lobes by a Ski Pole. *New England Journal of Medicine*, 260:1333-1334, 25 June 1959.
61. Slocum, Donald B., Treatment of Football Injuries. *Medical Times*, 87:1261-1268, October, 1959.
62. Urist, Marshall R., The Treatment of Dislocations of the Acromioclavicular Joint. A Survey of the Past Decade. *American Journal of Surgery*, 98:423-431, September, 1959.
63. Vermooten, Vincent, Sports Injuries to the Genitourinary Tract. *American Journal of Surgery*, 98:457-462, September, 1959.
64. Williams, Roger D. and Richard Patton, Athletic Injuries to the Abdomen and Thorax. *American Journal of Surgery*, 98:447-450, September, 1959.

II. Diet And Dietary Supplements

65. Anonymous, Something New in the Feeding of Athletes. *Athletic Journal*, 39:68, March, 1959.
66. Baker, Cecil, Should Athletes Drink Milk. *Coach and Athlete*, 22:22, October, 1959.
67. Blank, Lane Burton, An Experimental Study of the Effect of Water Ingestion Upon Athletic Performance. *Research Quarterly*, 30:131-135, May, 1959.
68. Boughton, Lloyd S., Vitamins in Athletics. *Coach and Athlete*, 21:22 *et seq.*, January, 1959.
69. Bullen, Beverly, Jean Mayer and Frederick J. Stare, Athletics and Nutrition. *American Journal of Surgery*, 98:343-352, September, 1959.
70. Cureton, Thomas K., What About Wheat Germ? *Scholastic Coach*, 29:24 *et seq.*, November, 1959.
71. DeLand, Walt, The Training Table. *Journal of the National Athletic Trainers Association*, p. 3, January, 1959.
72. Lucas, John A., Special Foods. *Athletic Journal*, 40:62, November, 1959.

III. Effects of Exercise

73. Calvin, Sidney, Effects of Progressive Resistive Exercise on the Motor Coordination of Boys. *Research Quarterly*, 30:387-398, December, 1959.
74. Cureton, Thomas Kirk, Physical Training Helps to Regulate and Improve Glandular Functions: A Review of Research. *Research Quarterly*, 30:266-284, October, 1959.
75. Johnston, Thomas F., *et al.*, The Influence of Exercise on Serum Cholesterol, Phospholipids and Electrophoretic Serum Protein Patterns in College Swimmers. *Federation Proceedings*, 18:77, March, 1959.
76. Jokl, Ernst, Ballistocardiographic Studies on Athletes. *American Journal of Cardiology*, 4:105-117, July, 1959.
77. Mathews, Donald K. and H. Alan Snyder, Effect of Warm-Up on the 440-Yard Dash. *Research Quartery*, 30:446-451, December, 1959.
78. Michael, Ernest D. and Arthur Gallon, Periodic Changes in the Circulation During Athletic Training as Reflected by a Step Test. *Research Quarterly*, 30:303-311, October, 1959.
79. Montoye, Henry J., *et al.*, The Effects of Exercise on Blood Cholesterol in Middle-Aged Men. *American Journal of Clinical Nutrition*, 7:139-145, March-April, 1959.
80. Rasch, Philip J. and M. Briggs Hunt, A Study of the Calculated Body Composition of Amateur Wrestlers. *Journal of the Association for Physical and Mental Rehabilitation*, 13:90 *et seq.*, May-June, 1959.
81. Rasch, Philip J. and William R. Pierson, The Effects of Bicycle Riding on Some Physical Fitness Scores and on Flexibility. *Journal of the Association for Physical and Mental Rehabiltaton*, 13:16-17, January-February, 1959.
82. Rasch, Philip J., Frederick Krieger, and M. Briggs Hunt, Use of the Starr Formulae to Determine Effects of Training on the Cardiac Stroke Volume and Related Measurements. *Journal of the American Osteopathic Association*, 58:786-788, August, 1959.
83. Sloan, A. W. and E. N. Keen, Physical Fitness of Oarsmen and Rugby Players Before and After Training. *Journal of Applied Physiology*, 14:635-636, July, 1959.
84. Stuart, Douglas G. and W. D. Collings, Comparison of Vital Capacity and Maximum Breathing Capacity of Athletes and Non-Athletes. *Journal of Applied Physiology*, 14:507-509, July, 1959.
85. Thompson, Clem, Changes in Body Fat, Estimated from Skinfold Measurements of Varsity College Football Players During a Season. *Research Quarterly*, 30:87-93, March, 1959.
86. Thompson, Hugh L. and G. Alan Stull, Effects of Various Training Programs on Speed of Swimming. *Research Quarterly*, 30:479-485 December, 1959.
87. Waglow, I. F., Nausea Resulting from Exercise. *The Physical Educator*. 16:23-24, March, 1959.

IV. Equipment

88. Dye, Edward R., Engineering Research on Protective Headgear. *American Journal of Surgery*, 98:368-372, September, 1959.

89. Rachun, Alexius and Frank J. Kavanagh, Protective Football Equipment. *American Journal of Surgery*, 98:363-367, September, 1959.

90. Player, Herbert S., An Investigation on the Use and Satisfaction of Contact Lenses in Sports. *Journal of the National Athletic Trainers Association*, p. 4, April, 1959.

V. Ergogenic Aids

91. Karpovich, P. V., Effect of Amphetamine Sulfate on Athletic Performance. *Journal of the American Medical Association*, 170; 558-561, May 30, 1959.

92. Smith, G. M. and H. K. Beecher, Amphetamine Sulfate and Athletic Performance: I. Objective Effects. *Journal of the American Medical Association*, 170:542-557, May 30, 1959.

VI. Miscellaneous

93. Anonymous, Ball and Wall. *MD*, 3:166-171, May, 1959.

94. Anonymous, Football Medicine at "Army." *MD*, 3:31-34, November, 1959.

95. Colville, Jay, Feet and the Athlete. *Journal of the National Athletic Trainers Association*, p. 1, January, 1959.

96. Hale, Creighton J., Athletics for Pre-High School Age Children. *Journal of Health, Physical Education, Recreation*. 30:19 *et seq.*, December, 1959.

97. Krogman, Wilton Marion, Maturation Age of 55 Boys in the Little League World Series, 1957. *Research Quarterly*, 30:54-56, March, 1959.

98. Logan, George B., Essential Medical Supervision in Athletics for Children. *Journal of the American Medical Association*, 169:786-788, February 21, 1959.

99. Montoye, Henry J., Wayne Van Huss, and Marvin Zuidema, Sports Activities of Athletes and Non-Athletes in Later Life. *The Physical Educator*, 16:48, May, 1959.

100. Rawlinson, Kenneth, The Place of the Trainer in Modern Athletics. *American Journal of Surgery*, 98:337-342, September, 1959.

101. Youngen, Lois, A Comparison of Reaction and Movement Times of Women Athletes and Nonathletes. *Research Quarterly*, 30:349-355, October, 1959.

VII. Physical Fitness

102. Dill, D. B., Fatigue and Physical Fitness. *Journal of the Association for Physical and Mental Rehabilitation*, 13:109 *et seq.*, July-August, 1959.

103. Harkness, James T., Physical Fitness for Sports. *American Journal of Surgery*, 98:328-331, September, 1959.

104. Jokl, Ernst, Physical Fitness and Susceptibility to Infection. *Journal of the Association for Physical and Mental Rehabilitation*, 13:141 et seq., September-October, 1959.

105. White, P. D., The Advantages of Physical Fitness. *Illinois Medical Journal*, 116:185, October, 1959.

VIII. Reports of Clinics and Committees

106. Anonymous, An Athletic Training Program. *Journal of the National Athletic Trainers Association*, p. 4, Fall 1959.

107. Anonymous, Excerpts From a Report on Mouth Protectors. *Journal of the National Athletic Trainers Association*, p. 13, April, 1959.

108. Anonymous, Missouri University Training Clinic. *Journal of the National Athletic Trainers Association*, p. 14, June, 1959.

109. Anonymous, W.I.A.A. Benefit Program *Wisconsin Medical Journal*, 58:42-45, January, 1959.

110. Clentzos, Peter, *Report of C.I.F. Youth Fitness Committee on Improvement of Physical Performance Through Weight Training*. Berkeley: California Interscholastic Federation (Mimeographed), March, 1959.

111. Ryan, Allan J., Organized Medicine and Athletics: The Role of the American Medical Association Committee on Injury in Sports. *American Journal of Surgery*, 98:325-327, September, 1959.

112. Snyder, David P., *A Report of California High Schools on the 1959 National Alliance Football Committee Meeting*. Berkeley: California Interscholastic Federation (Mimeographed).

IX. Respiration

113. Hensner, William, Respiratory Physiology in Competitive Swimming. *Scholastic Coach*, 29:42 et seq., September, 1959.

114. Keast, R. W., Respiratory Physiology and Skin Diving. *Journal of the American Medical Association*, 169:1419-1423, March 28, 1959.

115. Kiessling, Ralph J. and Clinton H. Maag, Nitrogen Narcosis and Its Effect on Performance. *Naval Research Reviews*, pp. 6-12, December, 1959.

116. Taylor, G. Delke, the Otolaryngologic Aspects of Skin and Scuba Diving. *The Laryngoscope*, LXIX:809-858, July, 1959.

X. Reviews of the Literature

117. Swegan, Don and Hugh Thompson, Experimental Research in Football. *Scholastic Coach*, 28:36, May, 1959.

118. Swegan, Don and Hugh Thompson, Experimental Research in Swimming. *Scholastic Coach*, 28:22 *et seq.*, April, 1959.

XI. Training And Conditioning

119. Bagwell, W. Howard, William H. Hunter, and W. Robert Johnson, The Conditioning of Athletes. *Coach and Athlete*, 22:22, September, 1959.

120. Belk, Floyd E., Physical Development Program for Football Players. *Scholastic Coach*, 29:36 *et seq.*, September, 1959.

121. Bennett, George E., Baseball and Other Athletic Injuries. *Medical Times*, 87:302-304, March, 1959.

122. Carlo, Joe, An Off-Season Conditioning Program. *Athletic Journal*, 40:76, September, 1959.

123. Castillo, Senoa A., Training for the Distances. *Athletic Journal*, 39:8, February, 1959.

124. De Vries, Herbert A., Effects of Various Warm-Up Procedures on 100-Yard Times of Competitive Swimmers. *Research Quarterly*, 30:11-20, March, 1959.

125. Dietzel, Paul, Weight Program for Off-Season. *Coach and Athlete*, 22:12 *et seq.*, August, 1959.

126. Grant, Bob, Some Suggestions About Conditioning of High School Football Players. *Journal of the National Athletic Trainers Association*, p. 14, April, 1959.

127. Hooks, Gene, Weight Training in Basketball. *Athletic Journal*, 40:42, December, 1959.

128. Jordan, Payton, Proper Training for Pole Vaulters. *Coach and Athlete*, 21:16, April, 1959.

129. Mamaliga, Emil, Body Development Through Weight Training. *Journal of the National Athletic Trainers Association*, p. 1, June, 1959.

130. Merling, Lawrence U., Influence of Massage on Jumping Performance. *Research Quarterly*, 30:66-74, March, 1959.

131. Mortensen, Jess, Weight Lifting for Track, *Coach and Athlete*, 21:24, April, 1959.

132. O'Connor, W. Harold, New Look at Cross-Country Training. *Scholastic Coach*, 28:28 *et seq.*, May, 1959.

133. Pudlowski, Vic, Developing Punters Through the Use of a Weighted Ball. *Athletic Journal*, 39:8, May, 1959.

134. Rasch, Philip J., Endurance Training for Athletes. *Journal of the Association for Physical and Mental Rehabilitation*, 13:182 *et seq.*, November-December, 1959.

135. Ryan, Jack, A Pre-Season Training Program for Swimming. *Athletic Journal*, 40:21, November, 1959.

136. Steitz, Edward S., Increase the Explosive Power of Your Athletes. *Athletic Journal*, 39:18, February, 1959.

137. Stout, Bob, Training Program for a Champion High School High Hurdler. *Athletic Journal*, 39:32, February, 1959.

138. Timmons, Bob, Championship Cross-Country Training. *Scholastic Coach*, 29:40 *et seq.*, October, 1959.

139. Thompson, Hugh, Weight Training. *Athletic Journal*, 39:46, May, 1959.

140. Vanatta, Bob, A Winning Attitude. *Coach and Athlete*, 22:16, December, 1959.
141. Wickstrom, R. L., Post-Season Weight Training for Basketball Players. *Athletic Journal*, 39:38 *et seq.*, April, 1959.
142. Wickstrom R. L., Weight Training for Football Players. *Athletic Journal*, 39:28 *et seq.*, June, 1959.

BOOKS AND BOOKLETS

143. Anonymous (John Neuman), *Athletic Weight Training Manual*. Mimeographed, n. pub., n.d., n. pp.
144. Anonymous, *Do It Yourself—Prevent Injury*. Chicago: National Federation of State High School Athletic Associations, 6 pp.
145. Eastwood, Floyd R., *Twenty-Seventh Annual Survey of Football Fatalities*. Cincinnati: American Football Coaches Association, January 8, 1959.
146. Karpovich, Peter V., *Physiology of Muscular Activity*, 5th Edition. Philadelphia: W. B. Saunders Company, 1959, 368 pp.
147. Logan, Gene A. and Roland F. Logan, *Techniques of Athletic Training*, 2nd Edition. Los Angeles: Franklin-Adams Press, 1959, 141 pp. Paper.
148. Massey, *et al.*, Benjamin, *The Kinesiology of Weight Lifting*. Dubuque: Wm. C. Brown Company, 1959, 171 pp. Spiral bound.
149. Morehouse, Laurence E. and Augustus T. Miller Jr., *Physiology of Exercise*, 3rd Edition. St. Louis: The C. V. Mosby Company, 1959, 349 pp.
150. Olson, Herbert W., Editor, *Index and Abstracts of Foreign Physical Education Literature*, Volume IV. Indianapolis: Phi Epsilon Kappa Fraternity, 1959, 104 pp. Paper.
151. Rasch, Philip J. and Robert K. Burke, *Kinesiology and Applied Anatomy*. Philadelphia: Lea & Febiger, 1959, 456 pp.

Book Reviews

Cates' Primary Anatomy, by J. V. Basmajian. (Baltimore: The William & Wilkins Company, 1960. 360 pp. $6.50)

Somewhat belatedly, the Third Edition of this text—then termed *Primary Anatomy*, by Cates and Basmajian, was given a highly favorable review in the July, 1959 issue of this *Journal*. The Fourth Edition is now to hand.The author states that unlike the previous edition, which was essentially a new book, there is no major change in presentation, but that there have been extensive changes in the illustrations.

In keeping with the modern trend in textbook writing, the number of illustrations has been greatly increased—514 in this edition as compared with 439 in the Third Edition. Several of these changes have been made in the chapter of greatest interest to corrective therapists, the Muscular System, where some illustrations have been removed and a number of new ones inserted.

There are also a number of alterations in the text in this section. While not major, they seem to indicate a tendency on the part of the author toward a lessened emphasis on pure anatomy and an increased interest in joint movements. This might be expected in view of Basmajian's reputation as an electromyographer and certainly will make the book more useful to therapists in general.

The reviewer remains by his original judgment: this is an excellent text and is enthusiastically recommended to the corrective therapist seeking a book less cluttered with minor details and more immediately useful than are Gray, Cunningham, Boyd, Lockhart, or any of the other major texts generally employed in medical schools. In the next edition Dr. Basmajian need have no hesitancy about including the corrective therapists among those for whom the book is especially designed.

PJR

Prosthetic Principles—Above Knee Amputations, by Miles H. Anderson, John J. Bray, and Charles A. Hennessy. Edited by Raymond E. Sellers. (Springfield, Illinois: Charles C. Thomas, 1959. 331 pp. $10.00.)

This reviewer knows of no better, more detailed, and more profusely illustrated "how-to" text on the actual fitting and fabrication of the above knee prosthesis. Although this text is designed for the prosthetist, it would make an excellent reference for the amputee clinic team if supplemented by its companion volume *Clinical Prosthetics for Physicians and Therapists*, issued by the same firm.

This text is not a review of the entire field of above knee prosthetis, but presents the particular approach of the U. C. L. A. Prosthetics Education Department of the School of Medicine. Chapters cover the functional anatomy of the lower extremity, locomotion, bio-mechanics, and information appropriate to the prosthetist's role in training the amputee to make use of his new limb. This includes the hydracadence unit and bilateral above knee amputees. Familiarity with the principles and techniques contained in this book is recommended for some member of all amputee teams.

DJS

An Inventory of Social and Economic Research in Health, Eighth Edition, compiled by Milvoy S. Seacat. (New York: Health Information Foundation, 1959. 560 pp. Paper.)

Here is the latest edition of an annual report. Section A lists social and economic research projects in health, giving a brief description of the problem, the method of attack, and a list of resulting publication. Section B lists financial sponsors of research projects, organizations conducting research, and personnel engaged therein. For the most part the type of studies reported herein fall somewhat outside of the areas of primary interest to corrective therapists. Typical investigations include an analysis of the pricing patterns of prescription medications, the role of hospital trustees, characteristics of medical and surgical nurses, genetics of interracial crosses in Hawaii, and similar matters. For persons working in such fields the book should be an invaluable reference.

PJR

The Golden Age of Quackery, by Stewart H. Holbrook. (New York: The Macmillan Company, 1959. 302 pp. $4.95.)

Here is the colorful story of the patent medicines and other proprietary "cures" inflicted on a long-suffering and gullible public from colonial times to the passage of the Pure Food and Drug Act in 1906. The impetus behind the enactment of this law came largely from a campaign waged in *Collier's* in 1905 by Samuel Hopkins Adams, a now forgotten reporter who deserves to be ranked as one of his country's benefactors. Most of these nostrums appear to have possessed excellent anti-freeze ratings; many of them could legally be dispensed only over the bar. The golden age of these frauds followed hard upon the Civil War. These were the days when Asa T. Soule could hire Bat Masterson and a gang of gun fighters to seize a county's records, and Doc Hartman could advertise that Peruna was used by Wyatt Earp, Doc Holliday, and the Clanton gang.

The decline in the use of these preparations reflects the work of the government, an increase in the literacy rate, and a greater sense of responsibility on the part of the newspapers in their acceptance of advertising. Unfortunately, radio has failed to keep pace. While reviewing this book the writer was amazed to hear the virtues of Swamp Root loudly proclaimed by a local station. And when we recall Hadacol, the Hoxsey cancer cure, and other current nostrums, we must wonder just how far we have progressed in educating the potential consumer.

Holbrook writes no indignant polemic. His is tolerant of mankind's foibles and tells his story cheerfully and perhaps nostalgically. Documentation should have been improved and the index is less than satisfactory, but the book is highly recommended for an entertaining and rewarding weekend's reading.

PJR

Karate: The Art of "Empty Hand" Fighting, by Hidetaka Nishiyama and Richard C. Brown. (Rutland, Vermont: Charles E. Tuttle Company, 1959. 251 pp. $6.75.)

If the reader knows nothing of judo, it is his own fault for not purchasing a copy of *The Techniques of Judo* reviewed here March-April, 1958. If he knows nothing of karate and ikeido, he may be pardoned, for works in English on these activities are almost non-existent. Charles E. Tuttle Company have now remedied the situation so far as the former is concerned with this work of art by Nishiyama and Brown.

Karate is a combination of Chinese and Okinawan self-defense techniques. While it is hundreds of years old, it was not until 1948 that Funakoshi Gichin codified its methods in their present form. Funakoshi thus occupies a position in karate analagous to that of the revered Jigoro Kano in judo. The emphasis in karate is on blows with the hand and on kicking, whereas the judoka specializes in throws and twistings of the joints. It is said that in some areas karate experts must register with the police department, since their hands are considered dangerous weapons. It appears to bear a blood relationship to the Siamese "boxing" sometimes seen in newsreels.

This reviewer is not competent to judge the suitability of the techniques described, but viewed simply as a text teaching a physical activity, the book is masterful. Typically, a page contains several small photos showing the execution of a movement, and several others depicting its use during actual competition. These may be supplemented by pictures taken from overhead in order to show details more clearly. Charts similar to those used by dance teachers are frequently employed to show the movements of the feet. Training programs, tactics, competition, self-defense, gymnasium equipment and its use, and similar matters are covered in detail. The quality of the photography is high, the text is well written, the book is intriguingly bound in an unusual burlap-like material, and the price is modest.

The authors and publishers are to be commended. It is, however, no more than we have come to expect from Charles E. Tuttle Company. The writer knows of no other publishing house whose products bear comparsion with those of the Tuttle Company for beauty, clarity, authoritative contents, and price.

PJR

A Brief Account of Henry Gray and his Anatomy, Descriptive and Surgical, by Charles Mayo Goss. (Philadelphia: Lea & Febiger, 1959. 51 pp. Paper.)

Probably every reader of this **Journal** has made use of **Gray's Anatomy,** but it is likely that few of them have any idea who Gray himself was. Here is a brief account of his life and work, written by the man who has edited the last three editions of his text. Gray was probably born in 1827. Other than the bare facts that he won several prizes for his work in anatomy and published some papers in addition to his famous book, surprisingly little is known of his career and of the men who influenced it. His masterwork, *Anatomy, Descriptive and Surgical,* appeared in 1858; three years later he died of smallpox. The various editions of the text are discussed, and the confusion resulting from the differences in the numbering of the American and British versions is dispelled. The final chapter gives a brief summary of the life of each of the American editors. A Bibliography and Appendices complete an interesting and well written little pamphlet.

PJR

Aphasia Handbook for Adults and Children, by Aleen Agranowitz and Milfred R. McKeown. (Ann Arbor: Edward Brothers, Inc., 1959. 103 pp. $3.25).

This handbook briefly covers a wealth of material for the retraining of the adult and young aphasic. This material is divided into the following sections: orientation (concepts, emotional problems) and retraining techniques. While the text is designed for professional therapists, college students, and family members of the aphasic, the latter may find it a bit difficult to use without some professional guidance.

NWF

Athletic Weight Training Manual. (Albuquerque: University of New Mexico, n. d. N. pp. Mimeographed.)

A copy of this pamphlet is provided to all football players at the University of New Mexico. Included with it is an exercise card used to direct the specific programs of the individuals. No author is given, but the booklet is probably the work of Assistant Football Coach John Neuman. In addition to weight training exercises it includes material on weight control, reducing diets, and physcal fitness tests. Approximately half of the pages are devoted to descriptions of standard exercises. It is somewhat surprising to note that the players are permitted to do the full squat if they desire, as this exercise has long been suspected of stretching and weakening the knee ligaments. The set system is advocated.

Those who follow football closely are aware that the University of New Mexico is experiencing a renaissance in this sport. Perhaps the introduction of this training program has played a part in its recent success. It would be extremely interesting to know what effect it has had on the injury rate and severity, especially where the knees are concerned.

PJR

Index and Abstracts of Foreign Physical Education Literature, Volume IV, edited by Herbert W. Olson. With an index by William R. Pierson. (Indianapolis: Phi Epsilon Kappa Fraternity, 1959. 104 pp. Paper.)

This is the best edition of this volume yet presented. The wonder is that it is not even better, for most of its faults are those which were listed in our review of the 1958 edition (this *Journal,* May-June, 1959) and could have been corrected in this issue. There is still a tendency to include obsolete material—for example a 1923 item—and articles of no conceivable interest to the physical educator, i.e., "Research on Chemical and Energy Metabolism in the Course of the Development of Insects. V. On the Respiration of the Silkworm and the Caloric Effect of Growth," and "Investigations of the Weight and the Chemical Composition of the Organs of Adult Dogs." The failure to make use of other standard reference sources is still in evidence.

An extremely useful and long-needed addition to this series of publications is the Index compiled by William R. Pierson. This covers the first four volumes and constitutes over one-third of the present edition. This reviewer would suggest that in the future indices material listed by title only be so indicated, thereby saving the users needless checking.

The Index adds tremendously to the value of these books, and the work is becoming an essential guide to the area which it covers.

PJR

The Westerners Brand Book, Book Eight, edited by Don Meadows. (Los Angeles: The Los Angeles Westerners, 1959. 231 pp. $17.50.)

The *Brand Book* of the Los Angeles Corral of The Westerners annually constitutes one of the most beautiful and important books to be made available to the collector of Western Americana. The 1958 edition, edited by Don Meadows, is no exception. Happily for the Western fan, it contains even more gunplay than is usually found in these volumes. Colonel Hoffman contributes an important eyewitness account of the Columbus raid and the subsequent punitive expedition, Paul Wellman traces the connections which directly link Quantrill's raiders to Pretty Boy Floyd via the James brothers, the Youngers, the Daltons, and others. Phil Rasch continues his definitive study of the Lincoln County troubles with a discussion of the murder of Huston I. Chapman. James Serven examines gunplay in Death Valley, and Earle Forrest recounts the history of Dodge City's Boot Hill. Articles on the Mormons, the life of James Willard Schultz, and similar topics offer fare for the rare reader who lacks an interest in violence.

The art section which is traditionally included in these volumes this year features sketches by Maynard Dixon and an account of his life and work by Don Louis Perceval.

It is safe to predict that this book will soon go out of print and become a collector's item, as have earlier volumes in this series.

WRP

Track and Field Athletics, by George T. Bresnaham, W. W. Tuttle, and Francis X. Cretzmeyer. Fifth Edition. (St. Louis: The C. V. Mosby Company, 1960. 538 pp. $5.50.)

The reviewer has long considered this one of the best books ever written in the field of athletic training. The fact that it now enters upon its Fifth Edition would seem to indicate that many others agree with this opinion. This pleasant circumstance no doubt results from the happy association of a distinguished physiologist with two prominent coaches, thus combining the theoretical and the applied.

Among the new features in this edition are weight training and isometric exercise programs. The reader may wonder about the inclusion of the latter. While Hettinger and Mueller have shown that they produce increases in strength when strength is measured in a manner similar to the way the exercise is practiced, the reviewer knows of no evidence to indicate that improvement in athletic performance results from their practice, and the single study cited in the text certainly offers no justification for their use.

Of particular interest are the descriptions of the training programs of Kuts, Zatopek, and other noted foreign runners. There are, however, some curious omissions. The reader may be surprised to find no references to Ganslen's studies of pole vaulting and javelin throwing, Morgan and Adamson's theories of circuit training, Bunn's mechanical analyses, or Montoye and Beck's definitive study of stop watch vs. mechanical timing.

In one case a study by Westerlund and Tuttle is cited, with no indication of the fact that its findings have since been rendered doubtful by investigations conducted by Henry, by Slater-Hammel, by Pierson, and by Sills. Additional evidence is required to justify the statement that the sprint start is a reflexive action; it appears more probable that it is actually a motor reaction to a stimulus. The conclusions drawn by the authors regarding the importance of starting time in a sprint appear to be contradicted by the experimental studies which they quote.

Nevertheless, it remains an excellent text from the practical standpoint and should be in the professional library of every one working with track and field athletes.

PJR

Completed Research in Health, Physical Education, Recreation, compiled by Alfred W. Hubbard and Raymond A. Weiss, Volume 1. (Washington, D.C.: A.A.H.P.E.R., 1959, $1.50. 60 pp. Paper.)

Completed Research is Volume I in a new annual bibliography. Its purpose is to list published research in its field and to present abstracts of theses and dissertations. Unfortunately the list of periodicals covered is quite restricted and in all too many instances theses and dissertations are listed by title only. It has always been extremely difficult to determine what work has been done on a given problem, particularly by candidates for higher degrees who have not published their findings. This can become an extremely useful tool. It is evident, however, that the coverage of the periodicals will have to be extended and that a far greater cooperation on the part of the colleges and universities will be necessary if the data is to be anywhere near complete. Like *Index and Abstracts of Foreign Physical Education Literature*, it holds promise of becoming an indispensable bibliographic aid, but may require a few years to reach its potential.

PJR

Athletic Directors National Conference. (Washington, D.C.: A.A.H.P.E.R., 1959. 75c. 32 pp. Paper).

On March 21-23, 1959 over 100 athletic directors met to discuss problems of mutual interest under the auspices of the Joint Committee on Physical Education and Athletics, representing the AAHPER, CPEA, and the NCAA. Reports of group meetings on administration, finances, facilities and equipment, staff public relations management, and an overall evaluation of the meeting are presented in this booklet.

PJR

Nonparametric Statistics for the Behavioral Sciences, by Sidney Siegel, (New York: McGraw-Hill Book Company, Inc., 1956. 312 pp. $6.75)

One of the distingushing marks of a profession is that its members contribute to knowledge by doing research. In research the statistical design is as important as the experimental design, and it is at this point that a common difficulty is apparent with the majority of the articles appearing in this *Journal*. Most corrective therapists have been out of college for five years or more, but the writers generally continue to use statistical techniques which were in vogue during their school years. The extremely limited research which has been reported seldom utilizes anything more sophisticated than Pearson product moment correlations or *t* scores; older therapists may even report critical ratios. These parametric techniques are based upon the assumption that the scores were drawn from a normally distributed population—a condition which unfortunately seldom exists in the behavioral sciences. It follows that they are usually unsuited for the type of research corrective therapists do. Statisticians have dealt with this by devising non-parametric tests. Since the appearance of this book there is no possible excuse for failure to employ them when their use is indicated.

Siegel has done an outstanding job of bringing together the non-parametric material. His explanations of their uses and limitations and his examples of typical problems are models of clarity. The inside covers contain a chart which enables the reader to select the proper test with a minimum of difficulty. True, the names of some of these tests are enough to frighten the apprentice statistician—"Kolmogorov-Smirnov" is much more formidable than "Pearson," and "Wald-Wolfowitz" is considerably more esoteric than "*t*" but actually most of them are no more difficult than the old Spearman Rho. One who follows Siegel's instructions step-by-step will find it difficult to go very far astray in their use.

This text is an absolute necessity for anyone doing research in the behavioral sciences, and Siegel is to be complimented for having made available an outstanding textbook.

PJR

BOOKS RECEIVED

Casework Performance in Vocational Rehabilitation, edited by Bruce Thomason and Albert M. Barrett. GTP Bulletin No. 1. (Washington, D.C.: U. S. Department of Health, Education and Welfare, May, 1959. 59 pp. Paper. 25c.)

Health and Physical Education Microcard Bulletin. (Eugene: University of Oregon, 1 October 1959. 47 pp. n.c.)

Most recent edition of a standard reference list.

Interview Between Bob Quintrell and Dr. Julius Sumner Miller. (Vancouver, B. C.: Canadian Broadcasting Corporation, September 29, 1959. 8 pp. Paper.)

Dr. Miller, a physics teacher at El Camino College (California), blasts modern educators for producing students who are linguistically illiterate, mathematically incompetent, and morally wanting.

LOS ANGELES GROUP HOLDS SPORTS MEDICINE MEETING

A colloquium of the Los Angeles members of the American College of Sports Medicine was held in that city on December 10 for purposes of discussing organization of a western chapter of the College. Among members present were Vice President Lawrence E. Morehouse, Philip J. Rasch, Harold J. Brenner, Wilfred Snodgrass, John Barringer and George Beckner. Dr. Morehouse read a brief paper on training stimuli which was followed by a general discussion. The group plans further meetings on March 11, tentatively scheduled for the University of Southern California and on May 3 in connection with the meeting of the Southwest District of the AAHPER.

News and Comments

MEDICAL RESEARCHERS HONORED

Appointment of Dr. Oscar Auerbach of the East Orange, N. J., Veterans Administration hospital and Dr. Ludwik Gross of the Bronx, N. Y., VA hospital as senior medical investigators have been announced by the VA in Washington, D. C. The senior investigator position, for full-time medical or dental research, is reserved for the VA's most distinguished research workers. An extremely limited number of appointments is available, and only four have been made since the position was created in January 1959. Both Dr. Auerbach and Dr. Gross are known for their cancer research.

Findings of Dr. Auerbach's research on smoking and lung cancer, conducted at the East Orange VA hospital under a grant from the American Cancer Society, were widely reported from the American Medical Association's meeting in Dallas and the VA medical research conference at Cincinnati, in December.

Dr. Gross, a pioneer of modern research on the virus origin of cancer, is internationally known for his findings on transmission of leukemia in mice.

Dr. Auerbach has been chief of laboratory service at the East Orange VA hospital since 1952. He also is associate professor of pathology at New York Medical College. Dr. Gross has headed the special cancer research program at the Bronx VA hospital since 1945. and he is an associate scientist of Sloan-Kettering Institute in New York City. Both Dr. Auerbach and Dr. Gross will remain at their hospitals to apply their unusual talents full-time to health problems of greatest importance to veterans.

DR. FOWLKS NAMED TO LIAISON POST

Dr. Everill W. Fowlks, Chief, Physical Medicine and Rehabilitation Service at the V.A. Hospital, Portland, Ore., has been appointed as official liaison representative of the American Academy of Physical Medicine and Rehabilitation to the Advisory Board of the Association for Physical and Mental Rehabilitation.

UNIV. OF CHICAGO HONORS DR. NEWMAN

The University of Chicago has recently awarded its 1959 Citation for Public Service to Dr. Louis B. Newman, Chief, Physical Medicine and Rehabilitation Service at the V.A. Research Hospital, Chicago, and Professor of Physical Medicine and Rehabilitation at Northwestern University Medical School. Dr. Newman was cited for "having accepted the privileges of a university education by assuming the obligations to society in exercising leadership in those civic, social, and religious activities that are essential to a democracy; for his public spirited citizenship and unselfish and effective service to the community, the nation, and humanity; and for the credit this service has reflected on the University and its alumni."

Dr. Newman has been a member of the Advisory Board of the Association for Physical and Mental Rehabilitation for many years and was the recipient of its John E. Davis Award in 1956. He has received many other honors including the 1958 Meritorious Service Award from the Veterans Administration; Civil Servant of the Year Award for 1958; and the Distinguished Service Award for 1957 from his alma mater, the Illinois Institute of Technology. He is president of the American Academy of Physical Medicine and Rehabilitation, vice president of the American Congress of Physical Medicine and Rehabilitation, past president of the Section on Physical Medicine of the American Medical Association and on the medical advisory boards of many national health and community organizations.

MENTAL HYGIENE CLINICS INAUGURATED

A new departure in psychiatric treatment has been undertaken by the Veterans Administration. The agency's first mental hygiene day center for treatment of veterans with service-connected mental illness was established recently at the VA outpatient clinic in Brooklyn, N. Y. VA expects that more of its mental hygiene clinics will establish similar centers within the next few years.

The day center program is designed primarily to provide more and better outpatient treatment for the increasing number of veterans being released from VA hospitals after treatment for service-connected schizophrenia. Many of these veterans recovering from schizophrenia, one of the most severe of mental diseases, need a great deal of help through the VA outpatient treatment program if they are to adjust to community living and avoid rehospitalization.

The Brooklyn clinic director, Dr. Philip R. Casesa, said some 75 patients will spend the major part of their time at the new day center in a therapy and planned living program under supervision of psychiatrists, psychologists, and social workers.

In addition to individual and group psychotherapy and educational and occupational therapy, this program will include social and recreational activities carried out with the assistance of volunteers from the community. In contrast, the regular VA outpatient mental treatment program provides for about two hours of psychotherapy per patient at a VA clinic weekly.

New tranquilizing drug therapies and improved treatment programs are increasing the number of patients being released from VA mental hospitals, especially the number of those being released after hospitalization for schizophrenia.

VA hospitals placed 13,332 patients on trial visit away from the hospitals during fiscal year 1958, a 34 percent increase over the 9,985 on trial visit during fiscal year 1955.

The day center is part of VA's continuing efforts to explore new methods of psychiatric rehabilitation. Other programs include:

1. Return of selected patients to communities through foster-home care.

2. Return of patients to the community at night after daytime treatment, or to daytime jobs in the community with treatment at night.

3. Selection of long-term mental patients for salaried employment at VA hospitals, to condition them for normal work and social life.

These programs help the patient make a smooth transition from hospital to home environment. Emphasis is placed on group therapy, resocialization techniques, and other rehabilitation methods.

ADVANCED COURSES IN HOSPITAL RECREATION ANNOUNCED AT MISSISSIPPI SOUTHERN

A graduate course leading to the degree of Master of Science in Hospital Recreation at Mississippi Southern College, Hattiesburg, has been announced by Dr. Jay S. Shivers, Head, Department of Recreation.

The program is primarily designed to give professional preparation to specialists preparing for supervisory, administrative and executive responsibilities. Course sequences have been arranged to prepare graduate students for executive leadership positions on any agency level, limited only by the immediate work experience of these students. The program is offered by the Recreation Curriculum as a full major with at least 24 hours of credit in the Department of Recreation and at least 16-22 hours in one or more other departments of the College. A nine month clinical experience is offered at the VA Centers at Biloxi and Gulfport.

The Forest Park Foundation Fellowship will be awarded to one student in this program. The fellowship carries a stipend of $2,000 for 18 months study. Any person seeking more information should write to Dr. Jay S. Shivers, Head, Department of Recreation, Mississippi Southern College, Hattiesburg, Miss.

DR. NORTH TO HEAD SURGEONS GROUP

Dr. John Paul North, chief of surgical service at the Dallas, Texas, Veterans Administration hospital and clinical professor of surgery at the University of Texas Southwestern Medical School will become Director of the American College of Surgeons January 31, 1961. He will succeed Dr. Paul R. Hawley, the director since 1950.

Dr. North, 59, has held his present post at the Dallas VA hospital since 1955 and was chief of surgical service at the VA hospital, McKinney, Texas, from 1946 to 1957. A Fellow of the American College of Surgeons since 1935, he is a governor and a member of the committee on trauma, and chairman of the subcommittee on traffic safety. He also is a member of the Advisory Council to the President's Committee for Traffic Safety.

NEW METHODS AID IN PRESCRIBING MUSCLE-RELAXING DRUGS

Better choice of drug treatment to relax muscle spasticity in multiple sclerosis, cerebral palsy, and related diseases of the nervous system is resulting from Veterans Administration research. Four doctors of the VA's outpatient clinic in Boston have developed a method of evaluating the effect different kinds of muscle-relaxing medicines have on numerous patients. This is the first time this evaluation technique has been used on human beings. As a result, it is now possible to make a better choice of the type of muscle relaxant most suitable for the individual patient.

Drs. Irving M. Levine, Dale Friend, Paul B. Jossman and Bernard Yood, all specialists in these diseases, came up with what neurologists have desired for a long time—a means of measuring the difference in muscle tension of a patient when he is receiving various test drugs as compared to when he is receiving a placebo, or harmless inactive substance that looks and tastes like the test medication.

The effect of medication as a muscle relaxant is recorded by an electronic measuring device operated by Vincent DeAngelis, chief technician of the clinic's neurophysiology laboratory. This instrument is similar in its basic construction to a brain wave machine but is designed to measure simultaneously several different functions of the human body, such as heart rate, respiration and muscle tension.

The evaluation of tests drugs is carried out as a "double blind" study. This means that for the 8 or 10 weeks a given drug is being evaluated, neither the patient taking the drug nor the physicians making the tests know whether the patient is taking the actual drug or a placebo. Only after all the the tests are completed and computations are made is the code broken down for final critical appraisal.

Dr. Levine, who pioneered these studies, devised the mathematical formula used in the calculations. Before a patient is accepted for "double blind" study he is carefully evaluated for any possible adverse reactions to the medication. Only the chief pharmacist ordinarily knows what the patient is taking during the "double blind" period.

The patient is placed in a reclining chair in a room adjacent to the recording equipment and given slight electric stimulation alternately to the left and right thigh muscles. The reaction to the electrical stimulation is seen as muscle responses, which are recorded as a graph for accurate measurement. At the same time the patient is observed through a one-way mirror for any external physical reactions. Intriguing to the VA researchers was the fact that the readings often paralleled the patient's verbal expression of his feelings during the tests, including those periods he was being given a placebo. During the 8 to 10 week test period patients returned to the clinic regularly for chemical laboratory tests and evaluation by their physicians, in addition to testing with the electronic device.

Scores of Greater Boston veterans who were stricken in the service with multiple sclerosis, head injuries, brain tumors and other diseases associated with spasms have cooperated to help perfect the methods and the formula used in measuring response to medication.

STUDY MORTALITY RATES IN PARAPLEGICS

Young men who survive the crucuial one-year period of illness following paralysis from spinal cord injury have a surprisingly good life expectancy, a Veterans Administration study shows: The study, by Harry Kessler, M.D., Morton Robins, M.S.P.H., Mary H. Burke, M.A., and Annie F. Hicks, all of VA Central Office in Washington, D. C., is published in the January 9 issue of the *Journal of the American Medical Association*. It is based on information about 4,198 patients with traumatic paraplegia and 1,377 patients with traumatic quadriplegia treated in VA hospitals between January 1, 1946 and September 30, 1955.

For the men who survived the initial year following injury and were under 45 years of age when injured, annual mortality during this 10-year period was between 1 and 2 per 100 in excess of the average annual mortality for men of the same age group in the general population.

For those who survived the first year and were over 45 when injured, the annual mortality rate was between 3 and 4 per 100 in excess of the rate for men in the same age group in the general population. After the first year, the quadriplegic patient had a life expectancy about as good as that of the paraplegic patient of comparable age.

The over-all figures for patients in the study show that younger men treated in VA hospitals have an excellent chance of surviving the effects of spinal cord injury and resulting paralysis. About 92 percent of the paraplegic patients under 45 years at time of injury and 87 percent of the quadriplegic patients under 25 when injured were living one year after injury.

Since it is believed that methods of caring for spinal cord injury patients have improved since 1955, the survival rate of patients with traumatic paraplegia and quadriplegia currently admitted to VA hospitals is expected to be even greater.

DEVELOP TEST FOR MOUTH CANCER

A simple and painless test for mouth cancer has proved highly efficient for early diagnosis in a three-year trial by dentists of the Brooklyn, N.Y., Veterans Administration hospital. The technique involves taking a smear or scraping from the mouth for miscroscopic examination, Dr. Henry C. Sandler, the hospital's chief of dental service, said.

Its accuracy as a cancer test compares favorably with that of biopsy, or removal and laboratory examination of a tissue sample, he said. In fact, the test often reveals the presence of cancer cells when the first biopsy does not. However, it is not a substitute for biopsy, Dr. Sandler said. When the test findings indicate cancer, the doctor makes several biopsies, if necessary, to confirm the diagnosis. The smear technique may be widely used by dentists to check on harmless appearing lesions of the mouth and for patients who object to biopsy.

A cooperative study to determine the wide-scale usefulness of the technique has been begun by dentists at 12 VA stations.

These are the Bronx, Brooklyn, Manhattan, Montrose, and Buffalo, N.Y., VA hospitals; the Brooklyn, N.Y., VA outpatient clinic; the New York City VA regional office; the VA hospitals in Philadelphia, East Orange, N.J., West Haven, Conn. and Wood (Milwaukee), Wis.; and the Veterans Benefits Office in Washington, D.C.

Although dentists can, and often do, detect cancer of the mouth, the disease area in its earliest stages is painless and appears quite innocent even to the trained eye, Dr. Sandler said, adding:

"The smaller the size of the lesion when it is first detected and the earlier it is treated, the better are the chances of cure."

Dr. Sandler said 5 percent of all cancers are cancers of the mouth. Most mouth cancers occur in men over 40 years of age, he said, but they may occur at any age.

OHIO-KENTUCKY-INDIANA CHAPTER TO MEET

A tri-organizational chapter meeting of Ohio, Kentucky and Indiana therapists will be held at the VA Hospital, Louisville, Ky., on April 2.

DEYOE AWARDED SPECIAL COMMENDATION

Frank S. Deyoe, rehabilitation coordinator of the PM & R Service, VA Hospital, West Roxbury, Mass., was honored recently through the award of a commendation by Dr. William S. Middleton, Chief Medical Director of the Veterans Administration. The commendation cited Mr. Deyoe "in recognition of his dedication and skill as hospital cordinator for the Physical Medicine and Rehabilitation program. He has won wide acclaim as a writer and instructor in this field and has shown unusual devotion and technical ability in the rehabilitation of veteran patients."

In discussing Mr. Deyoe's achievements, Dr. Ralph S. Metheny, Hospital Manager, paid tribute to his series of studies to improve program development, a system developed by Mr. Deyoe whereby patients can effectively be referred to the State Division of Employment Security upon discharge, his work on many important hospital committees, his development of an in-service training program, and the enthusiasm and cheerfulness he has displayed.

Mr. Deyoe, a former chief, corrective therapy, has long been active in the affairs of the Association for Physical and Mental Rehabilitation which he served as president in 1955-56. He is the co-author of a text on ambulation, member of the President's Committee on the Employment of the Physically Handicapped, and a representative on the United Community Services Committee on Education and Curricula in Rehabilitation. He received the Corrective Therapy Award of the APMR in 1956. Mr. Deyoe was recently nominated for consideration for the Arthur J. Flemming Award. Only two employees of the VA Department of Medicine and Surgery were nominated for the award which is presented annually by the Junior Chamber of Commerce, Washington, D.C., to young men in government service who have performed outstanding work or displayed unusual executive, scientific or technical ability.

L.A. SPORTS MEDICINE GROUP HOLD WINTER MEETING

The Los Angeles Area Members of the American College of Sports Medicine held their winter meeting at the Univ. of So. California on March 10. Dr. Gene A. Logan escorted the group on a tour of the facilities of the research laboratory of the Department of Physical Education after which a business meeting was held. The principal speaker at the meeting was Dr. George Beckner who spoke on "Physiological Cardiac Hypertrophy as Seen in Marathon Runners."

The Spring meeting of the group will be held on May 4 at the Corral Room of the Westward Ho Hotel in Phoenix, Ariz. in connection with the meeting of the Southwest District of the A.A.H.P.E.R. A syposium on weight training will be moderated by a panel consisting of Dr. Roger K. Burke, Dr. L. E. Morehouse, Dr. P. J. Rasch and Eugene R. O'Connell.

VA BOWLING TOURNAMENT ANNOUNCED

The fourteenth annual national bowling tournament for veterans in the Veterans Administration's 170 hospitals and 18 domiciliaries will be held on March 28 through April 23 the VA has announced. Sponsored by the Bowlers Victory Legion, Washington, D.C., the tournament will crown champion five-men teams in tenpins and duckpins. Divisions of competition will include ambulatory patients, wheelchair and litter patients, and blind veterans.

The teams bowl within the official dates at their own establishments under tournament rules. The scores are forwarded by official scorers to Washington by mail where results are compiled and champions named.

TEXAS U. RECEIVES GRANT

The Department of Health, Education and Welfare, Office of Vocational Rehabilitation, has recently announced the award of grants for 65 new research and demonstration projects and 39 continuation projects. One of the grants will go to the University of Texas "to study specific problems related to the post-operative and post-injury rehabilitation of the knee" which will be carried out by Prof. Karl K. Klein and associates.

RECRUITING FOR DIETITIANS

The Veterans Administration in recruiting for dietitians at the GS-5 to GS-10 level ($4,040 to $6,505 per year). The positions to be filled are in VA hospitals and outpatient clinics at major and smaller cities throughout the United States, except in Hawaii and Alaska.

Applications may be mailed to the Executive Secretary, Central Board of United States Civil Service Examiners, Veterans Administration Central Office, Washington 25, D. C. Applicants will not be required to report for a written test but will be rated on the extent and quality of their experience and training. The application forms and information about the recently revised requirements of training and experience are available at post offices and at any VA hospital, regional office, or clinic.

The application should consist of Card Form 5001-ABC and Form 57, plus a transcript of the applicant's college credits. Applications for the GS-5 grade will be accepted from students enrolled in accredited colleges or universities.

LETTERS

(The following letter was written by Francis M. Pottenger, Jr., M.D., of Monrovia Calif., to Philip J. Rasch, Ph.D., author of "Endurance Training for Athletes" which appeared in this Journal 13:6-182, *Nov.-Dec.*, 1960.)

Dear Doctor Rasch:

I read with much interest the reprint which you so kindly sent me, *"Endurance Training for Athletes."* Having spent most of my life in the handling of chronically ill, I am particularly impressed with certain of the statements in your reprint which have borne out in my own work, namely, that "too much emphasis is laid on the heart as the limiting factor in endurance," and "perhaps a metabolic factor related to the functions of the liver is involved."

I have frequently noted in individuals of low physical energy that they may have a good muscle bundle, primarily a strong initial dynamic pull which tapers off relatively rapidly. They may have an adequate ventilating mechanism, yet their blood as judged by its color may not become the bright red which it should if oxygenation is adequate. On exercise, this group of people show a diminished metabolic response rather than increased metabolic response as is presented in our books on physiology. Repetitious training is essential to their recovery, but their actual physiological limits are frequently way below the limits which they attempt. They usually pay for it by increased exhaustion the following day. It seems quite paradoxical to say to the exhausted woman who is completely done up by a half mile walk to the grocery store and back, and has reached the exhaustion level, that it is necessary to cut down her consecutive walking to as little as a quarter of a mile and gradually build her up; that in the long run you want her to be able to walk five miles. I tell these individuals that they should fly on 60% of power (following the suggestions of the Civil Aeronautics Board for piston planes) and to only occasionally test themselves to their full endurance. They can be rehabilitated, but are so rarely worked out because it takes time, patience and determination on the part of the physician and the patient. Most people have too much to do to recover.

I fully recognize that you are speaking entirely of so-called normal individuals while I am speaking of the pathological. Yet your article is most stimulating inasmuch as it gives me further insight into some of the things I have been observing.

Very truly yours,
Francis M. Pottenger, Jr., M.D.

PLEASE PATRONIZE OUR ADVERTISERS

PROGRAM AIMS TO IMPROVE WELL—BEING OF AGING VETERANS

A program designed to best assure aspects of individual dignity and self-respect among older, incapacitated veterans is being conducted by the Veterans Administration. Participating are the 16,000 disabled veterans who are residents of the VA's 18 domiciliary homes. Mostly aging men without close family ties, all are incapacitated from earning a living and are unable to pay for their care. The VA program is aimed at preventing them from drifting aimlessly into inactivity and physical and mental degeneration.

It has the advantage of being able to draw, as needed, on the skills of specialists and therapists from many fields who are on the staffs of VA hospitals. Where such staff specialists are available, the veteran entering a domiciliary is screened, by a medical team made up of a psychologist, a social service worker, a vocational counselor, an occupational therapist, a recreation specialist, and a physical therapist, in addition to physicians and a dentist.

After he receives a complete physical examination and is referred for any needed treatment or additional examinations, he is given orientation in the facilities and activities of the VA station. Psychological testing usually is part of the evaluation for new residents. The men also are interviewed to learn how well they understand the program and what they want to do, and are encouraged to choose suitable recreation and work which are provided. The VA staffs try to fit the activities of the domiciliaries to the physical and emotional needs of the veterans.

Clerical workshops, for example, are being established at some of the domiciliaries because many residents prefer clerical jobs to machine shop work. The clerical workshops offer tasks such as assembling clinical folders for nearby VA hospitals, making meal tickets, stamping forms used at the VA hospitals, and stuffing envelopes. Other workshop jobs at the domiciliaries include making bandages, refinishing furniture, and repairing electrical equipment. Gardening also is popular with the domiciliary residents.

To date, the VA program has not only improved the physical well-being of the domiciliary residents, as shown by a reduction in their hospitalization rate, but has resulted in general improvement in their social adjustment.

"We believe that performance of useful work promotes the individual's self-esteem and contentment," said Dr. M. H. Travers of VA Central Office in Washington, D.C., director of the agency's domiciliaries. "Most persons, even those who are disabled, want to do something besides sit in a rocking chair," he said.

When the program began at the Wood (Milwaukee), Wis., VA domiciliary, for example, three years ago, about 330 residents were classified as "nonduty." Because of disabilities, they were not capable of general maintenance work at the home. Today, the number of nonduty residents at Wood ranges from 25 to 30, although about 350 of the veterans at the home are severely disabled with heart, nervous system, lung and bone and joint diseases. The severely disabled veterans take more pride in their grooming and personal appearance than they did before the program began, and their use of leisure time has become more constructive. Most of them now spend two hours a day in workshops at the home.

The other VA domiciliaries are located at Bath, N.Y., Kecoughtan, Va., Mountain Home, Tenn., Dayton Ohio, Hot Springs, S.D., Los Angeles, Biloxi Miss., Bay Pines, Fla., Whipple, Ariz., Wadsworth Kans., Temple and Bonham, Tex., Martinsburg, W. Va., Dublin and Thomasville, Ga., Camp White, Ore., and Clinton, Iowa.

VA STEPS UP GERIATRIC PROGRAM

The Veterans Administration is strengthening its medical services for the aging and chronically ill, the Administrator of Veterans Affairs, Sumner G. Whittier, has announced. Mr. Whittier said the VA is completing a comprehensive study of problems of aging veterans, and at the same time is going ahead with several newer related medical programs. These include establishing day care centers for mental patients, improving vocational rehabilitation services, developing community home care plans for patients and planned living programs for VA domiciliary residents, and encouraging extension of volunteer services for follow-up purposes to VA patients after leaving the hospital.

In addition, three VA geriatric clinics have been established as pilot programs, and rehabilitation services are being extended from the clinics into the homes of service-connected veterans, Mr. Whittier said. He said the study of problems of aging veterans, being made by the VA-wide Committee on Aging, is in final stages and will recommend broad action by the agency in the field of aging, possibly including proposals for legislation.

The VA mental hygiene day centers are for treatment of veterans with service-connected mental illness. Centers were established during 1959 at the Brooklyn, N.Y., New York City, and Boston VA outpatient clinics and in San Diego, Calif., where a small pilot program had been in operation for several years. A day care center now is being set up at the mental hygiene clinic of the Veterans Benefits Office in Washington, D.C.

Vocational counseling and job placement services now are in operation in more than 100 VA hospitals, which in cooperation with the U.S. Employment Service, State departments of rehabilitation, local employers, newspapers, local rehabilitation centers, and other community resources are returning many disabled veterans to paying jobs.

The VA Voluntary Service, a major asset of the agency's medical program, is increasingly valuable as a help to aging disabled veterans, Mr. Whittier said. Through the nationwide VAVS organization, the VA is now seeking more volunteers, particularly those who will follow up patients leaving VA hospitals and assist them in readjusting to community life.

Geriatric clinics to offer comprehensive medical care for veterans of the Spanish-American War are now in operation at the VA outpatient clinics in Brooklyn, Boston, and San Francisco.

Among the studies are pilot projects in extending outpatient care into the home, with the aim of enabling the disabled and elderly veteran to remain in his home community. On advice of the physician, teams of therapists in physical medicine go to the homes of service-connected veterans for whom travel to VA clinics for treatment would be difficult. The therapists also survey the homes for need of adaptations and special devices that can enable the veterans to continue living there instead of in a hospital.

HALF-WAY HOUSES FEATURE REHAB EXPERIMENT

Among the neat and quiet homes in one residential section of Gulfport, Miss., are two that hold a gripping interest for psychiatrists and social workers.

They are "half-way houses" where some 36 mentally ill patients from the Veterans Administration hospital in Gulfport are living as an experiment in rehabilitation.

The project was begun by the hospital 15 months ago to meet the need of emotionally disturbed veterans during the difficult transition from the sheltered environmnt of the hospital to independent community life.

"Half-way houses" offer an opportunity not provided by the hospital or the family setting, Dr. Lawrence G. Behan, director of professional services at the VA hospital, says. Veterans living in the houses return to the hospital during the day, Mondays through Fridays, to continue in therapeutic activities. Otherwise, they are on their own. The "half-way houses" are operated by private owners, and the veteran-patients pay their own expenses from compensation and pension checks.

Veterans selected to live in the houses must be in a convalescent stage of illness, psychologically capable of living outside the hospital, capable of attending to personal needs and handling money, and ready to assume responsibility for taking prescribed medications. The homes were carefully selected by social workers.

Community acceptance of the program has been remarkable, according to Dr. Behan, and many neighbors have asked VA officials how they can assist the veterans.

Patients in the "half-way houses" are free to participate in community recreation activities and to leave on visits to their friends and relatives. So far, the experiment seems to be paying off in returning worthwhile citizens to society.

APHASICS LEARN FROM DOLLHOUSE

Dollhouse furniture has proved a strange but effective tool for a Veterans Administration doctor seeking to regain the interest and coordinate the thinking of men who lost that ability through brain injury.

Such men are known as aphasics. They are unable to speak or comprehend the written or spoken word and must be taught all over again to recognize even the most commonplace objects. Painstakingly, like a small child, they must learn the names of individual articles and associate them by groups or common purposes.

That is where the doll furniture plays a part.

Dr. Joshua Ehrlich, chief of the Albany, N. Y., VA hospital's physical medicine and rehabilitation service, has devised a group of miniature stage settings to represent the various rooms of a doll house. Open at the top and one side, they are easily accessible for placement of furniture and accessories.

In efforts to coordinate the thinking of some 30 aphasic veterans at the Albany hospital, the therapist tells a patient, "Here is a room. Let's make it into a kitchen."

From an assortment of dollhouse furnishings, the patient, fumbling at first but with growing confidence, will seek the articles he needs for his kitchen. One by one he learns their names and uses again. Then he seeks to arrange them on the stage set, a task that is not easy for one who has lost the power of coordination between mind and hand.

To begin with, the patients often cannot even understand oral instructions, but must learn by watching a demonstration of the process to be followed.

In an article in Archives of Physical Medicine and Rehabilitation, Dr. Ehrlich tells of work conducted by himself and Mrs. Jeanne C. Cook, former speech therapist at the hospital.

They told a 63-year-old man to furnish a bedroom. He did it within 30 minutes. The next time he completed a dining room in 15 minutes. As the drill continued the patient improved his ability to deal with categories. When he was discharged from the hospital, he carried over this ability into ordinary life. He could answer questions about his wife, the hospital and his home without confusing the categories as he had when admitted.

Originally, Dr. Ehrlich, which at the Louisville, Ky., VA hospital, used a six-room dollhouse made in the hospital's occupational therapy section. He later modified the house to a group of coordinated stage settings with cutaway walls and roof. These lend themselves better to visual retention and hand-eye placement.

Treating an aphasic is like teaching a first-grade pupil to read, Dr. Ehrlich says.

"Years ago there was no effort to retrain aphasics," he explained. "As a result they simply sat around and remained disabled."

He cited a 61-year-old stroke victim who, after four months of treatment, overcame aphasia to such an extent that he was able to return to his postoffice job. Not many years ago he probably would never have come out of the hospital.

Dr. Ehrlich considers patience the most important attribute in therapists who work with aphasics. Certainly patients at the Albany hospital are assured of this from their new speech therapist, James N. Norrix of Salt Lake City.

James Norrix once had aphasia himself.

MIDWEST CHAPTER TO MEET

All members of the Midest Chapter, APMR, are urged to attend the spring meeting to be held May 1 at the V.A. Research Hospital in Chicago. A certification examination is scheduled to qualify new therapists in the midwest area.

DR. LYON HAILED FOR PIONEERING WORK IN ATOMIC MEDICINE

The Veterans Administration has given its highest award, the Exceptional Service Award, to Dr. George M. Lyon, whose pioneering work in atomic medicine resulted in the agency's present leadership in this field. Now manager of the Huntington, West. Va., VA hospital, Dr. Lyon formerly headed both the VA's atomic medicine and medical research and educational programs in Washington, D.C.

He was special assistant for atomic medicine to the VA Chief Medical Director from 1947 to 1956, and he held the additional post of VA Assistant Chief Medical Director for research and education, from 1952 to 1956.

SAN JUAN HOSPITAL STUDYING SCHISTOSOMIASIS

The Veterans Administration Hospital in San Juan, Puerto Rico, is making an unique contribution to a large scale VA medical research project. The hospital is cooperating in a study of treatment for patients with esophageal varices, or varicose veins of the food pathway to the stomach.

This condition occurs when schistosomiasis closes the tiny blood vessels of the liver. The veins of the esophagus then become enlarged and, sometimes, fatal hemorrhage results.

The blood fluke, schistosoma, which causes schistosomiasis, is not found in the Continental United States although it is common in some other parts of the world. The disease is fast disappearing under the American flag since Puerto Rico is making major strides in controlling the snail that carries the parasite.

CONNECTIVE TISSUE STUDIES AID RESEARCH IN AGING

Two researchers at the Veterans Administration Center in Martinsburg, W. Va., are attempting to discover a built-in, reliable clock which will measure the body's rate of aging. Dr. Thomas H. McGavack, chief of intermediate service at the Martinsburg Center, and Dr. Kung-Ying Tang Kao, biochemist, have concentrated their studies on connective tissue—the unspecialized, undramatic cells that make up a large portion of the body's skin, bones and inner content.

The VA researchers have found striking changes in the proteins of some connective tissue as the body grows older. They have concluded that those tissues which are richest in insoluble collagen and elastin (protein compositions which are grouped as "sclero-proteins") show more change of protein structure as they age than do other tissues of the body.

Dr. McGavack and Dr. Kao say their research is leading to answers to the three questions: (1) what goes on in aging? (2) what is a practical, reliable test to show the rate at which a particular body is aging? and (3) what methods can be found to relieve some of the characteristic diseases of aging?

They point out that disturbances of connective tissue are highly important for people growing older, since these are prominent features of the commonest diseases of old age, such as arthritis, pulmonary emphysema, diabetes, and atherosclerosis.

Dr. McGavack is a recognized authority and researcher in the field of gerontology (science of aging). He is a former president of the American Geriatrics Society and was formerly professor of clinical medicine on the faculty of New York Medical College.

Dr. Kao, a physician, also holds a Ph.D. degree from the University of Maryland. She is a native of China but with her husband, a doctor of medicine, has been a resident of the United States since 1947.

CHAPLAIN SERVICE CITED

Psychiatry and religion are working hand-in-hand in the Veterans Administration to restore mentally ill veterans to health. The chaplain service of the Salisbury, N. C., VA hospital, for example, began a special program more than a year ago, to give patients more opportunity to study and discuss their problems and develop a wholesome attitude toward life. It is for patients "on privileges"—those who have reached a stage of recovery at which they have freedom to come and go about the hospital and nearby towns. Both the hospital manager and the patients are enthusiastic about the results.

"Through the efforts of our chaplains, more of our patients have a better understanding of themselves and an earnest desire to make a satisfactory adjustment upon leaving the hospital," said Dr. S. J. Muirhead, the manager.

"To talk freely, sharing my interest with the group has helped to clarify my thinking," said a patient. Other patients commented: "I have learned many things;" "It has helped me to gain confidence;" "I am glad of the opportunity to render a service to others."

From the beginning of the program, patients helped to plan it. Two Protestant chaplains, George F. Hood and Milton B. Faust, met with a representative group of patients. They established a study and discussion conference each Saturday morning with a meeting somewhat similar to a civic club meeting, with a guest speaker and social hour, once a month at night. A chairman for the program is elected each month by the patients.

Attendance at the Saturday morning conference averages 20 to 25 patients. They have discussed such subjects as "Overcoming Our Worries," "Getting Along With People," "Why I Should Believe In Myself," and "Adjusting To Life."

The meetings at night average 80-85 in attendance and patients from different wards are special guests each month. A church group provides refreshments for the social hour.

In addition, the patients have organized committees to assist the chaplains, serving as ushers in the hospital chapel; escorting wheelchair patients to the services, and singing in the choir and on the wards in the holiday season.

YOU ARE CORDIALLY INVITED TO ATTEND

Fourth Tri-Organizational Conference

THE ASSOCIATION FOR PHYSICAL AND MENTAL REHABILITATION

AMERICAN ASSOCIATION OF REHABILITATION THERAPISTS

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MIRAMAR HOTEL

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ATTRACTIVE PROGRAM OF SOCIAL EVENTS INCLUDING POLYNESIAN LUAU, MISS UNIVERSE BEAUTY CONTEST, TRIP TO HOLLYWOOD. CHAPTER COCKTAIL PARTY.

ASSOCIATION FOR PHYSICAL AND MENTAL REHABILITATION, INC.

APPLICATION FOR MEMBERSHIP

Enclosed please find (Check one)

..... $15.00 for Active Membership
..... $ 5.00 for Professional Membership
..... $ 5.00 for Associate Membership
..... $ 3.00 for Student Membership

PLEASE PRINT or TYPE:

Name ..... Date .....

Home Address ..... Business Address (If Different) .....

Proposed by ..... Address of one proposing .....

..... Applicant's Signature .....

Please fill out the following appropriate section (I, II, III or IV)

I. — ACTIVE MEMBERSHIP*

Position Title ..... Location .....

Education .....
Names of college or university

....
Degrees(s) (Major)

*Requires additionally either (a) 250 hours of clinical experience under medical supervision; (b) 6 months experience in rehabilitation; (c) master's degree in Physical education which includes (a).

II. — PROFESSIONAL MEMBERSHIP

I received my ..... degree or certificate from .....
(Cross out 1)

.....

I am ..... Location .....
(Please list profession related to rehabilitation such as physician, nurse, etc.)

Answer (a), (b), or (c) as the case may be:

(a) My major was ..... (must be in allied medical or educational field)

(b) I am a graduate of ..... course leading to certificate in .....
(must be in an allied medical or educational area)

(c) I have a ..... degree on graduate level (must be in an allied medical or educational area)

III. — ASSOCIATE MEMBERSHIP

I am employed as ..... Location of employment .....

I am ineligible for Type I or II membership, but I am interested in the total field of rehabilitation because

.....

IV. — STUDENT MEMBERSHIP

I am a student currently attending .....
(Name and address of school)

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(This must be a school of Physical Education or similar area of rehabilitation)

Course and major .....

Please fill out all required spaces and send check in proper amount made payable to the ASSOCIATION FOR PHYSICAL AND MENTAL REHABILITATION, INC.

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"I beat mental illness..."

"Not too long ago I suddenly found myself facing the biggest challenge of my life. And this one I had to win because it wasn't like playing in a basketball game as an All-American star. It was a challenge, or a battle, to conquer mental illness. Fortunately, I won that battle and then went on to make my come-back. But I didn't do it alone. I had doctors and nurses and the latest scientific treatment methods working for me. But most of all, I had my team-mates and friends, and even strangers rooting for me. That last ingredient is what hundreds of thousands of mentally sick people need most. They need to know that you're on their side. That's why I'm appealing to you. From personal experience, I know the mentally ill can recover. You can help them do so by supporting your mental health association. Thanks a lot."

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FORMER ALL-AMERICAN BASKETBALL STAR

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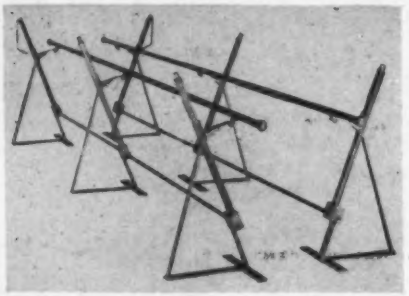

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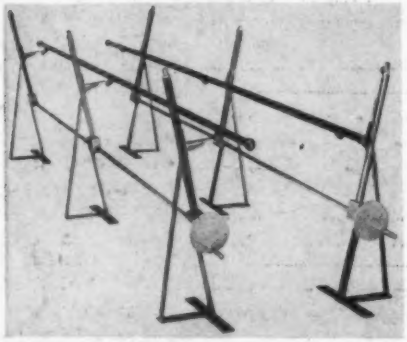

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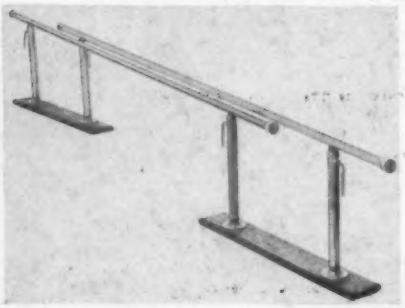

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